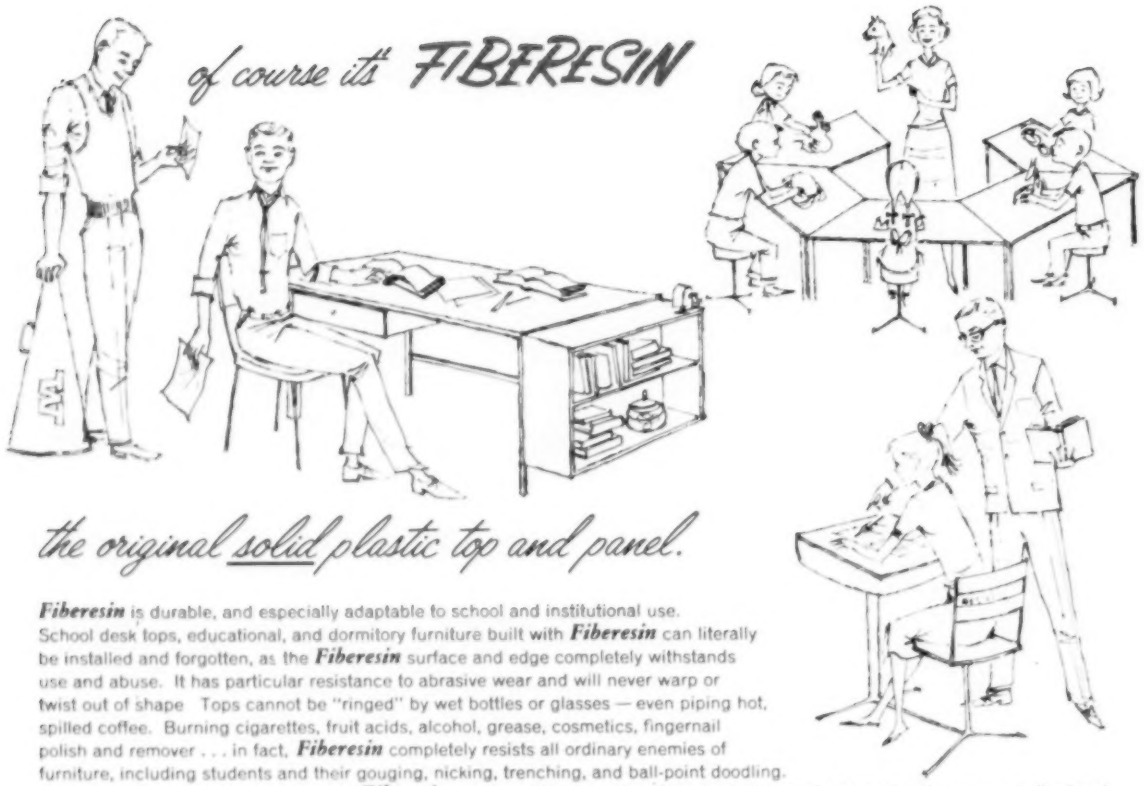
college
AND UNIVERSITY
business

FEBRUARY 1961

LANGUAGE LABORATORY, MEMPHIS STATE UNIVERSITY (page 39)

of course it's **FIBERESIN**



the original solid plastic top and panel.

Fiberesin is durable, and especially adaptable to school and institutional use. School desk tops, educational, and dormitory furniture built with ***Fiberesin*** can literally be installed and forgotten, as the ***Fiberesin*** surface and edge completely withstands use and abuse. It has particular resistance to abrasive wear and will never warp or twist out of shape. Tops cannot be "ringed" by wet bottles or glasses — even piping hot, spilled coffee. Burning cigarettes, fruit acids, alcohol, grease, cosmetics, fingernail polish and remover . . . in fact, ***Fiberesin*** completely resists all ordinary enemies of furniture, including students and their gouging, nicking, trenching, and ball-point doodling.

Furniture and school desks built with ***Fiberesin*** are beautiful, too. The flat, ripple-free surfaces and satiny, warm-to-the-touch finish reflect truly fine furniture construction. ***Fiberesin*** also provides ideal, approved light reflectance . . . important on school desks, desirable on other furniture. Whether the furniture is a simple tablet arm chair, a traditional desk, or a modern, contemporary dormitory chest, the selection of ***Fiberesin*** assures beauty, as well as function.

And, ***Fiberesin*** is so easy to care for! Once over lightly with a damp cloth and the top or panel looks like new. Badly soiled surfaces are more easily cleaned with any of the cleaner-waxes available. Because of the proven durability of ***Fiberesin***, it never needs refinishing . . . a most important feature to anyone concerned with operating costs!

More and more schools throughout the country are specifying ***Fiberesin*** for its durability and functionalism . . . college and university, contract, institutional and government buyers are demanding it for these features, as well as its beauty . . . if desks or other furniture are a part of your plans, we suggest you SPECIFY FIBERESIN — THE GUARANTEED MATERIAL . . . first choice of educational purchasing executives.

FIBERESIN meets all specifications and requirements of Federal Specification L-T-0041c (GSA-FSS) Type 111.

a **the exclusive fiberesin edge**

Fiberesin, being a ***solid*** board throughout, presents a ***solid*** edge profile. The ***Fiberesin*** edge requires no expensive, fragile banding, lamination, or concealment. It is shaped to any desired contour and simply finished. Only ***Fiberesin*** offers this solid use-and-abuse resistant edge that will withstand severe mishandling without damage! The elimination of edge banding also eliminates a sanitary hazard . . . there are no crevices to trap and hold food, milk, dirt, and germs.

b **the perfect fiberesin surface**

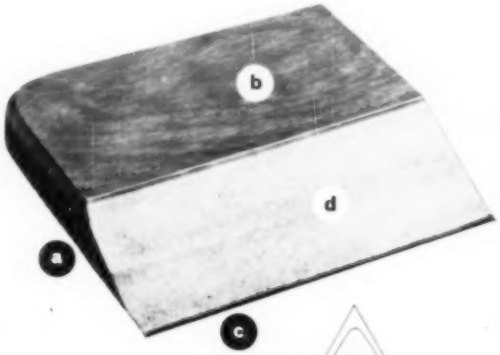
Fiberesin is molded under controlled heat and high pressure against pre-finished press plates . . . there is no possibility of surface irregularities, glue lines, "telegraphing" grain patterns, or high spots. No ripples or shadows mar the appearance of ***Fiberesin***. The molded-in surface finish has the soft, satin effect of fine furniture.

c **identical surfaces**

Physically identical top and bottom surfaces insure a warp-free board and form an impenetrable barrier against moisture absorption.

d **"one piece" from face to face**

Because of the complete interflow of resins under the controlled heat and pressure, the materials fuse together to complete a chemical and physical reaction. The resulting panel is a single, solid piece from face to face, edge to edge. The panels are structurally balanced, dimensionally stable, twist and warp-free . . . there is no possibility of delamination or glue line separation.



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College and University
Administrators

Realistic planning for the next decade must be based on answers to questions more searching than any that have been asked before:

> What level can instructional salaries reach?...What are the realistic limits of plant expansion?...What are the top limits on tuitions?...How can plant operations be handled more economically?...What inflationary factors operate in higher education?
>
> And other questions equally complex.

Exhaustive research has developed data against which the individual institution can measure its own performance and make increasingly accurate plans for its program and for the generation of the financial resources essential to those plans. This approach permits maximum flexibility in the use of norms as yardsticks, rather than as anchors to conformity.

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Sincerely,

Walter L. Darling

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AMONG THE AUTHORS: **John D. Millett,** president of Miami University, Oxford, Ohio, has had a long and distinguished career in higher education administration. His comments on institutional self-analysis are distilled from his present university experience and from his work as executive director of the Commission on Financing Higher Education. . . . **Daniel P. Webster,** a member of the professional staff of the National Safety Council, has major responsibility for coordinating college safety programs of the Council and is co-author of an article commenting on the inadequate fire safety procedures of most college and university administrations. . . . **Loren V. Kottner,** director of the university union building at Kansas State University, is always on the alert to note or develop better ways of doing the day's work. Some of his helpful hints appear on page 49.

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QUESTIONS AND ANSWERS

Building Program

Question: How can university administrators make their wants known to the architect-engineer of a college building program? — H. H., Ind.

Answer: A frank discussion with the engineer on the problems and philosophy of maintenance operations will often work wonders in getting cooperation in their way of thinking. This discussion should point out the problems of supply, particularly when located in a smaller community. Maintaining stocks of parts may be costly and space consuming, but standardization could eliminate much of that.

This philosophy and standardization must not be carried too far or its purpose will be defeated. There would be no purpose in trying to standardize on pipe fittings, globe and gate valves, and such items, as the major manufacturers already have set dimensional standards.

Heating specialties are one area where uniformity of make and model is recommended. This can be further desirable if the material can be obtained through more than one wholesaler. One set of parts can then be interchangeable between buildings and mechanics can become more familiar with adjustments.

What particular make of a certain type of equipment has given you trouble? If this same type of equipment is to be installed on a new project, you should certainly let the engineer know that you have had trouble and what the trouble was. For example, we have had the same make of ventilating fan on two different jobs. On one job the fans have always been noisy. On the second job the fans started to be noisy and it finally was determined that a bearing was responsible. The company would assume no responsibility (although they did determine the cause), so we had to correct the trouble out of maintenance funds. Examples such as these will have a bearing on the engineer's recommendations and approvals.

For those who generate their own electric power and extract steam for heating and process, a discussion of over-all campus heat balance with the engineer will be valuable. The use of steam absorption water chillers for air conditioning may be of great over-all campus value. This would be especially true if electric generating capacity and lines were becoming heavily taxed, as we would not be adding the heavy electric load and also utilizing extracted steam to reduce electric generation costs.

Another question that arises very often in a laboratory building is the use of electric *versus* steam stills. Many times the condensation of extracted steam will give satisfactory quality distilled water. This would give lower water costs even though we don't recover the condensate used as distilled water. — Ben W. Schaefer, *superintendent, physical plant department, Iowa State University.*

Junior Colleges

Question: How many junior colleges will the nation require to keep pace with the ever expanding population? — R.J., Fla.

Answer: We need at least another 1000 junior colleges in this country and they should be built at the rate of 100 a year for the next 10 years.

In the decade ahead our college enrollment will double, going from 3½ million to 7 million. Our colleges and universities are bulging at the seams. They simply cannot take all the qualified men and women who are seeking admittance. As a result, admission standards are getting out of hand. Many competent students are not admitted because of arbitrary admission rules, caused by overcrowded conditions.

The private junior college can play an important role in seeking to resolve the growing impasse in higher education. Of the 675 junior colleges in this country, only 100 are independently operated. More private junior

(*Continued on Page 12*)

If you have a question on business or departmental administration that you would like to have answered, send your query to COLLEGE and UNIVERSITY BUSINESS, 919 North Michigan Avenue, Chicago 11, Ill.

Training Table?

Of a kind—yes! Women students love to sup by candlelight. It does something for morale—plays an important part in the complete and gracious development of the student, too.

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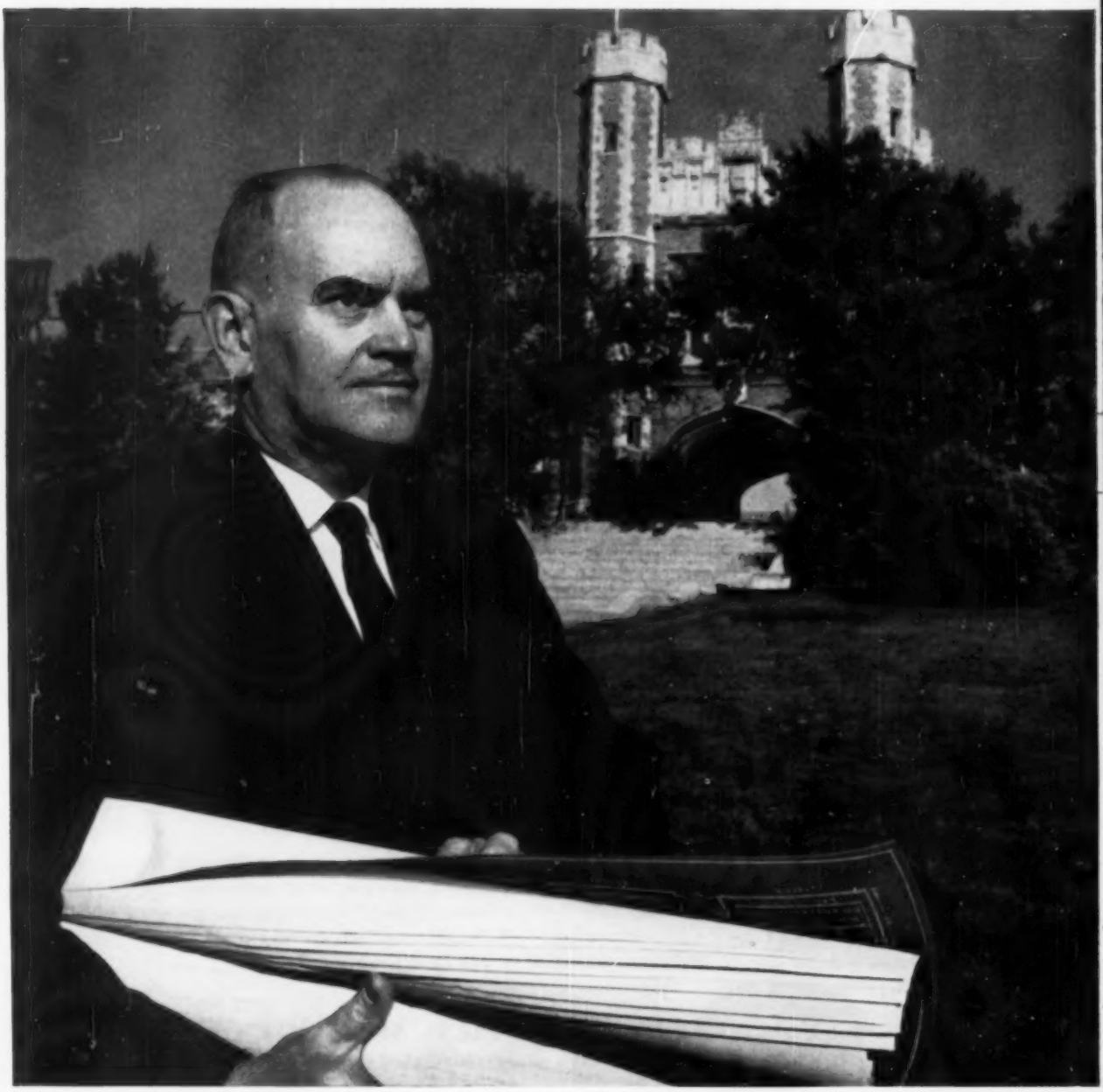
Mr. F. G. St. Clair, Supervising Engineer,
Washington University, St. Louis, Mo., says:

"Honeywell proved that could help us meet the rising



Mr. Frederick G. St. Clair stands on the campus of beautiful Washington University. Under his arm are the blueprints for the school's spacious new Library.

centralized climate control cost of education!"

Architects: Murphy & Mackey
Consulting Engineer: Fred S. Dubin—Paul Londe, St. Louis, Associate
Mech. Contractor: Sodemann Heat & Power
Elec. Contractor: Sachs Electric

Washington University's spacious new Library will be the first of many campus buildings to profit from Honeywell's centralized climate control

"Educating our youth today is becoming an expensive proposition—both for parents *and* for schools," says Mr. St. Clair. "As our campus expands, we must take advantage of every possible means for holding our operating costs down, while still achieving a good supervisory control. One such means is our Honeywell Selectographic DataCenter, designed to provide centralized control over the entire heating and air conditioning system in our new library building."

The Honeywell Selectographic DataCenter at Washington University will justify itself in a few years by enabling one man to control the entire temperature control system from the control center—thus assuring the most economical and efficient performance of the system possible. At the same time, it will provide an ideal climate for study and learning in every classroom. Future buildings will also be controlled from this same console.

Your present and future campus can be coordinated through the installation of a Selectographic DataCenter, too. For further information, call your local Honeywell office. Or write, Honeywell, Dept. CB-2-172, Minneapolis 8, Minn.

An engineer, sitting at a Honeywell Selectographic DataCenter, will control the entire heating and air conditioning system in Washington's new Library and in many future buildings as well.

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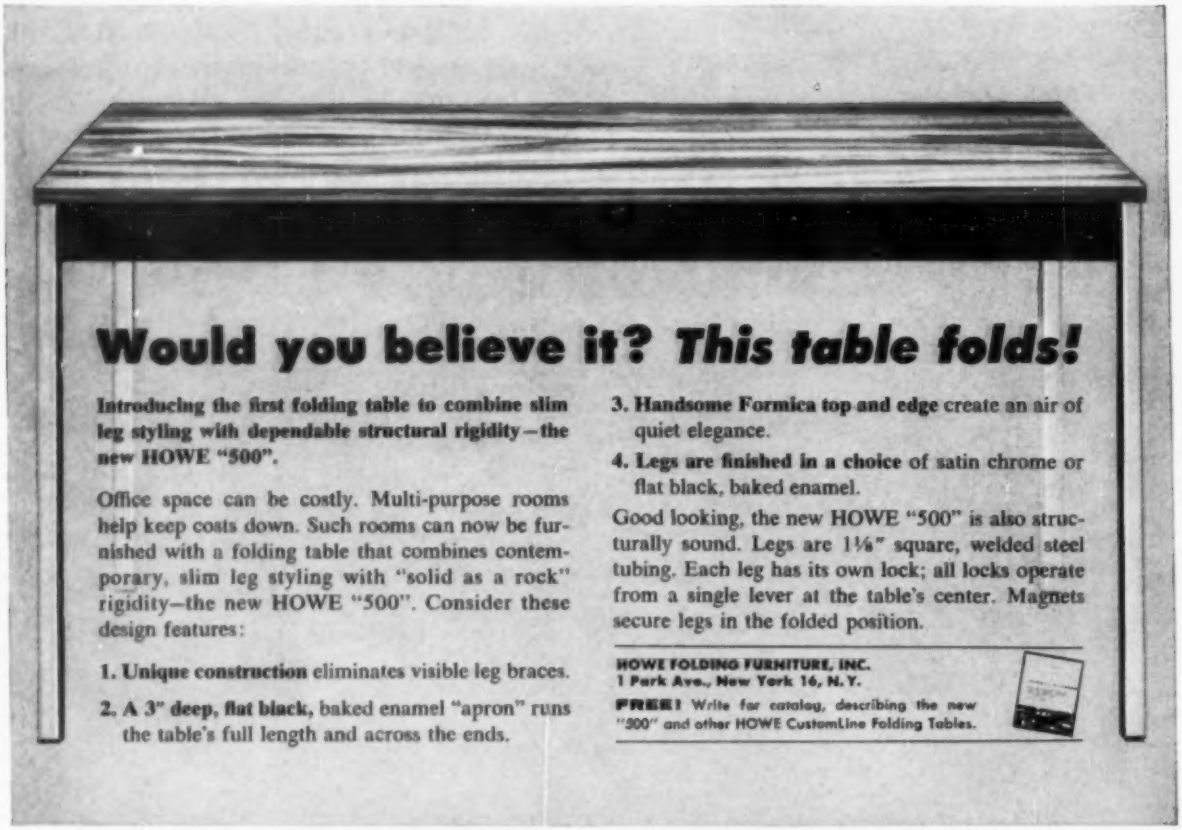

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Introducing the first folding table to combine slim leg styling with dependable structural rigidity—the new HOWE "500".

Office space can be costly. Multi-purpose rooms help keep costs down. Such rooms can now be furnished with a folding table that combines contemporary, slim leg styling with "solid as a rock" rigidity—the new HOWE "500". Consider these design features:

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3. **Handsome Formica top and edge** create an air of quiet elegance.
4. **Legs are finished in a choice** of satin chrome or flat black, baked enamel.

Good looking, the new HOWE "500" is also structurally sound. Legs are 1⅛" square, welded steel tubing. Each leg has its own lock; all locks operate from a single lever at the table's center. Magnets secure legs in the folded position.

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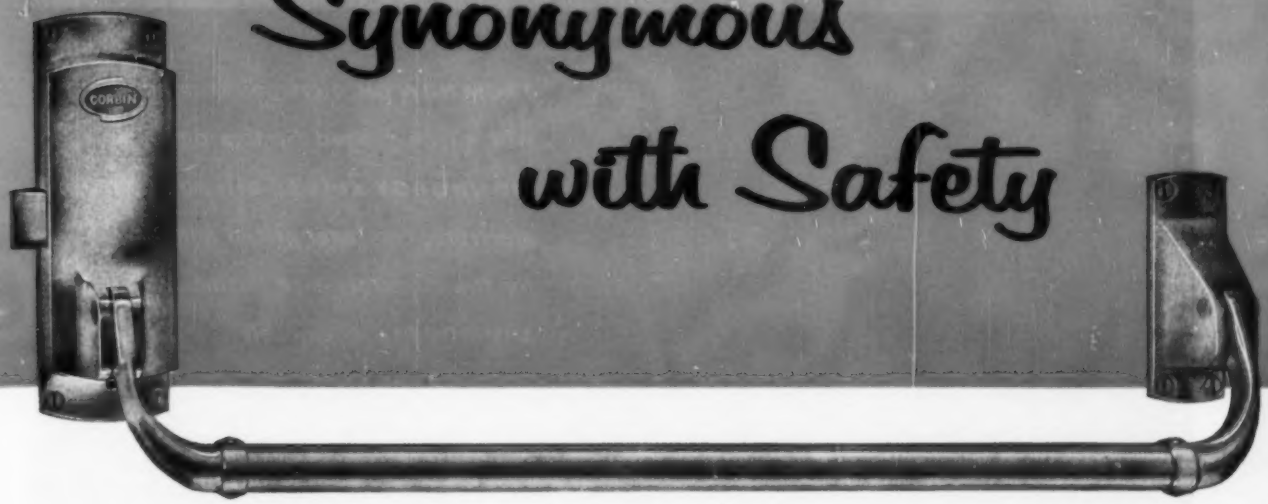

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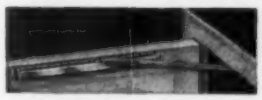

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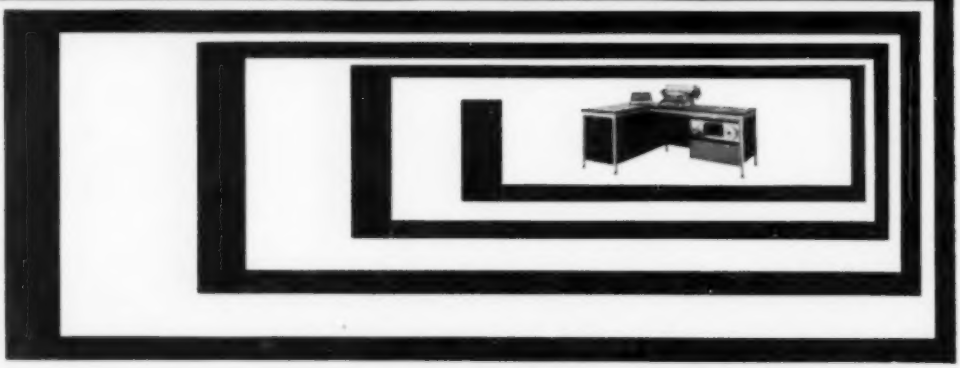

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Questions & Answers

(*Continued From Page 4*)

colleges are needed. The bulk of the students now go to public two-year colleges.

Just as on the senior college level we have private and public institutions, so we need both types on the junior college level. — BENJAMIN FINE, *educational editor, North American News Alliance.* (From an address he gave recently entitled "The Role of the Private Junior College in Education.")

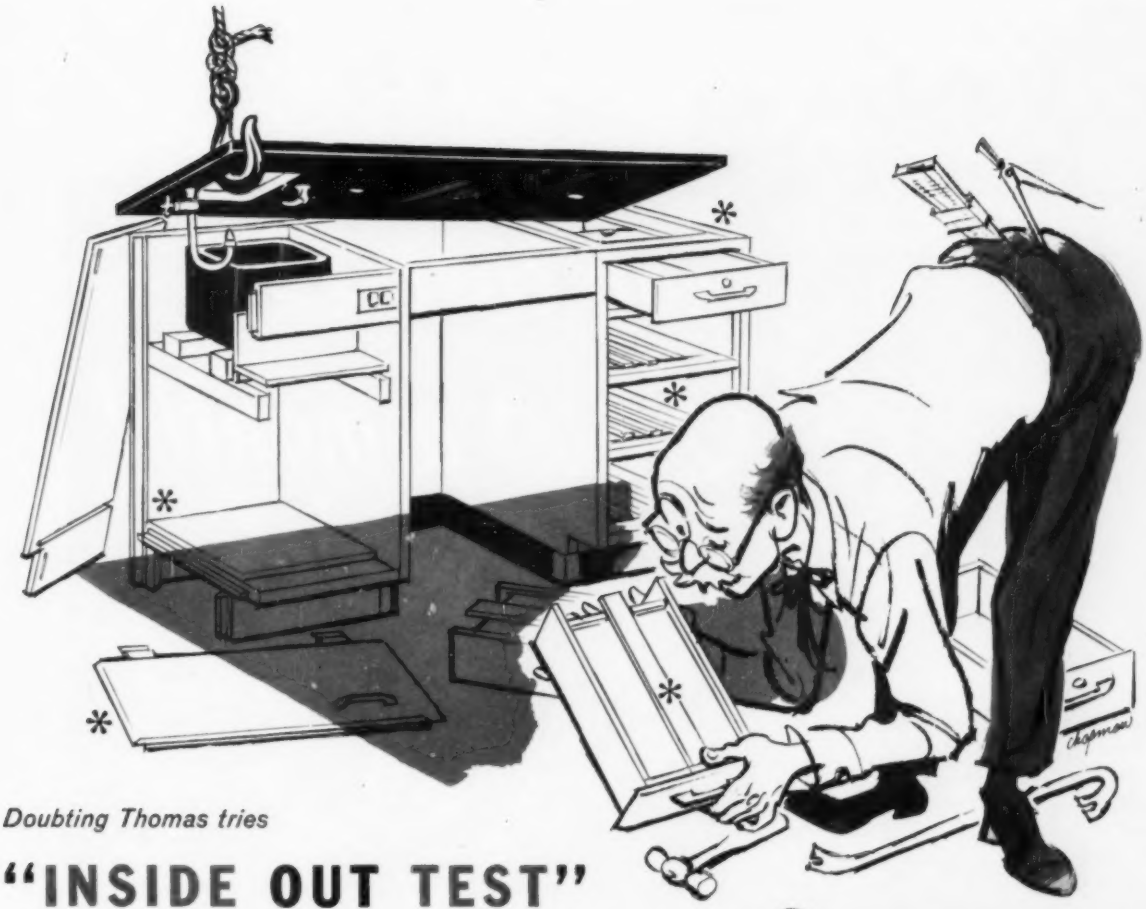
Paying for Extras

Question: Are colleges paying for features not required on new building projects? — M. F., W. Va.

ANSWER: We should watch for items being specified that are special and demand a premium price when a standard item at regular prices would serve the purpose. Special features added to a standard product make the manufacturer expend added development and manufacturing costs that are passed on to us. Unless such features have definite advantages in usage, they should be omitted to reduce costs.

We often are confronted with the problem of extending a utility service when other means would suffice. For example, should we extend an air service line to a new project whose demand is quite low or install a separate compressor-receiver unit? Or should a gas main be extended many hundreds of feet when an L.P. installation would be sufficient for the demand until further service is required?

In another area it appears to me that some of our temperature control systems are becoming unnecessarily complicated. These complicated systems require the special training of personnel for maintenance. Can we justify the added initial cost and more constant supervision for a system that controls within a 2 degree spread when a less complicated system controlling within a 4 degree spread would be adequate? I feel that we have been subject to sales pressures to install equipment not reasonably justified. All these added features increase our regular operating costs. — BEN W. SCHAEFER, *superintendent, physical plant department, Iowa State University.*



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The sagacious savant, conducting the infallible Kewaunee "INSIDE OUT TEST," is obviously a figment of our artist's imagination. Nevertheless, he humorously personifies thousands of scientists, chemists and doctors who have had the opportunity to work with Kewaunee scientific equipment. While only a few have first hand knowledge of the many obscure details which combine to form the finest technical furniture manufactured, the rest instinctively realize that it's the fulfillment of "their heart's desire."

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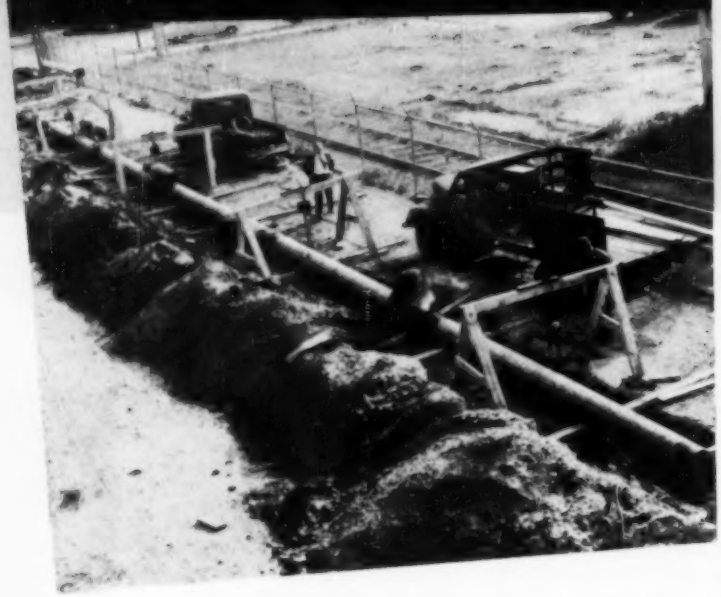

The illustrated Insulation Efficiency Report, is a cost comparison study of a Ric-wiL Underground Steam Distribution System vs. a competitive type system. The report is based on actual calculations, using the National District Heating Association's method for determining heat loss. The findings show a 2% heat loss that in one month can cost the owner $2,000.00 in increased steam cost.

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Try slip-proof Contrast on any floor. Better yet, give it a real workout. Test it on your toughest floor problem. You'll be amazed and delighted over the way it ends floor maintenance headaches. One gallon protects and beautifies approximately 2000 square feet.

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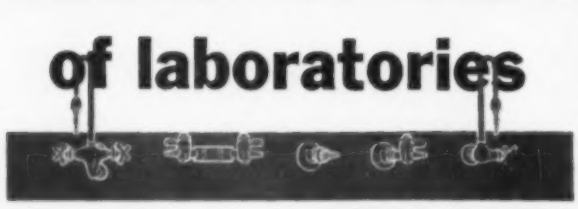
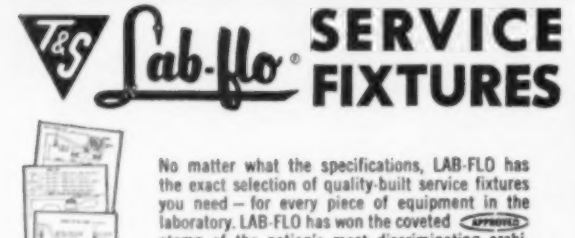


of laboratories



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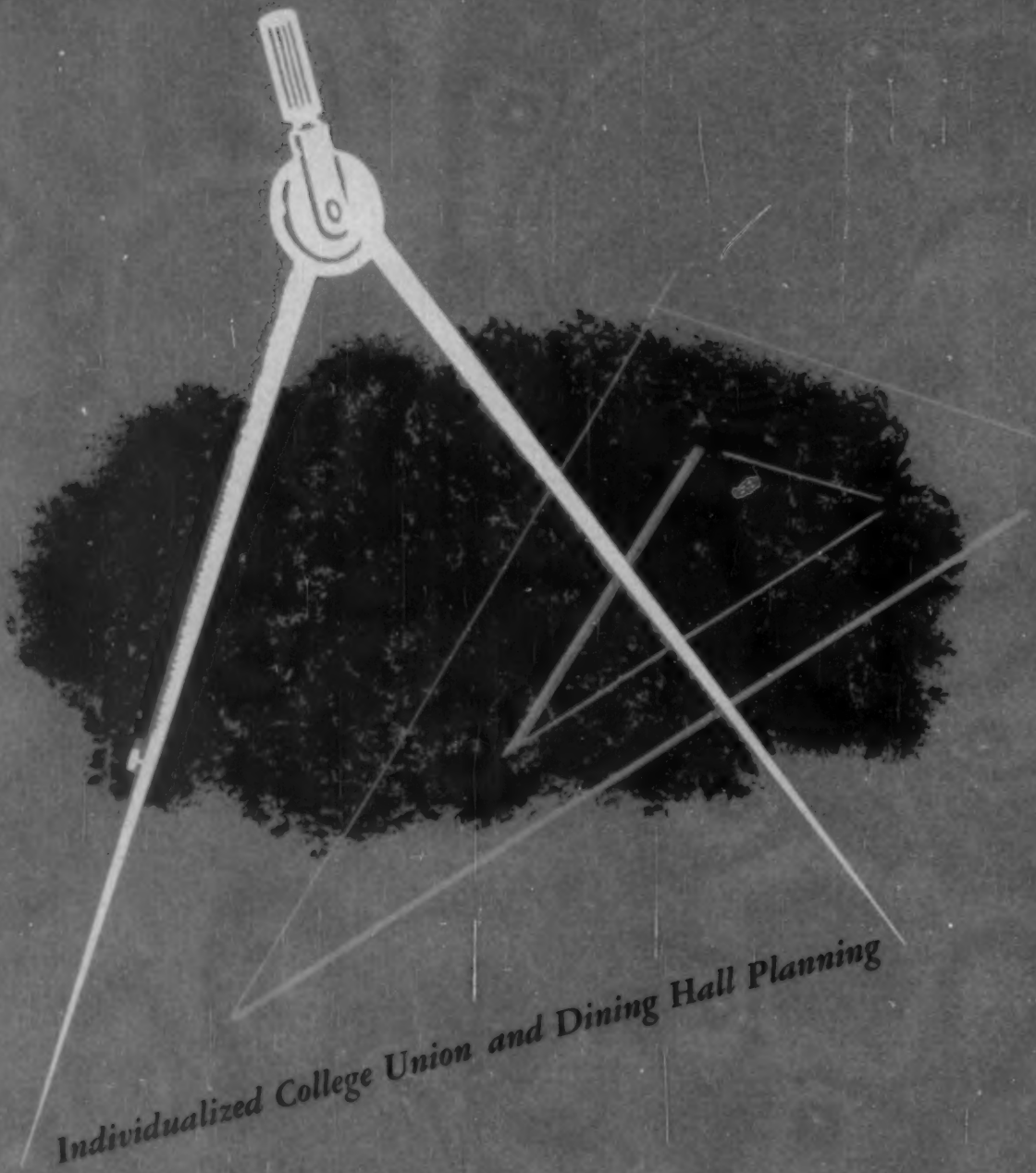

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New Plates: Exclusive narrow-lip design holds more food . . . takes less tray space. New Plasti-sizing Process makes them even more grease and water-proof.

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New Savings! Convert to Chinet molded paper service and end the problem and expense of dishwashing help. Also eliminate sanitation problems, the initial and replacement costs of expensive tableware and the need for elaborate equipment. These savings will far outweigh the cost of paper service itself.

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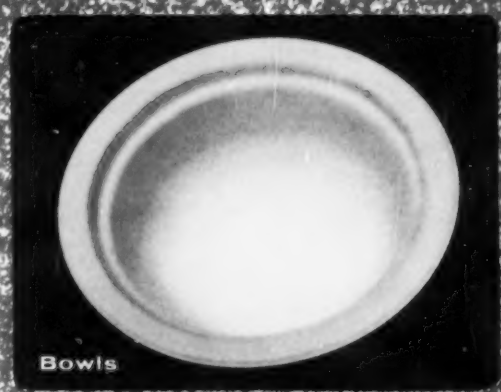
Bowls

Mail This Coupon for Complete Details on the Complete Molded Paper Plate Line
KEYES FIBRE COMPANY, Dept. CU-2
Waterville, Maine
Please send me complete details on Keyes Chinet® Plates, Bowls and Platter-Plates. I would also like information on Kys-Ite® plastic serving trays.

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Imaginative Engineering Puts to Work on *DAYLIGHT*

Mike Best and Ed Kralovec, mechanical engineers on the Madonna school, shown discussing job details with two of their colleagues.

Kralovec & Best, consulting engineers, went one step further in their heat and ventilation design for the new Madonna High School, Chicago — they applied pneumatic control to skylight louvers.

To meet the lighting requirements of the combination auditorium-gymnasium, architect C. I. Krajewski used a system of sky domes equipped with adjustable light dampers. How to control the dampers quickly and efficiently for change-over from plenty of daylight for gym activities to total blackout for movies, etc., was the problem presented to the consulting engineer.

Kralovec & Best's solution was — twenty-nine 4-inch powerstroke piston damper motors — one for each of

Powers Pneumatic Control

MADONNA HIGH SCHOOL
Chicago, Ill.
Architect: C. I. Krajewski, Chicago
Consulting Engineers:
Kralovec & Best
Chicago
Heating Contractor:
Windsor Heating Co.
Chicago

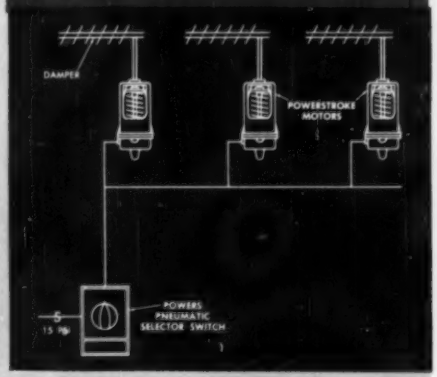
the sky dome louvers on the roof — energized instantly from a single Powers pneumatic selector switch in the projection room. Turning the switch activates air pressure at 15 psi. through a Powers Series 500 Pilot Valve to the motors to close the light louvers. When the switch is turned off, pressure is released . . . and the louvers swing open to admit light.

Pneumatic control of daylight in Madonna school is fast, easy and quiet — a definite convenience for the projectionist or instructors, an operational bargain for the school, maintenance-wise.

The complete heating system, as specified by Kralovec & Best, includes two hot water converters controlled at fixed temperatures. Individual classrooms are heated and ventilated by unit ventilators, controlled on the standard day-night cycle. Corridors, rest rooms, storage and locker rooms employ direct radiation controlled by Powers Day-Night room thermostats. For extra safety and comfort, hot water to all showers is controlled by means of a Powers Hydroguard Thermostatic Shower Control.

Here, then, is how imaginative engineering applied to pneumatic control can have unusual — but practical — results in an efficient, low cost system.

A single pneumatic selector switch in the projection room actuates 19 sets of light louvers through 29 individual powerstroke motors.



Write for the latest Powers Catalog of pneumatic controls for schools.

THE POWERS REGULATOR COMPANY
DEPT. 261 — SKOKIE 54, ILLINOIS | *Offices in Principal Cities in U.S.A. and Canada*
MANUFACTURERS OF THERMOSTATIC CONTROLS SINCE 1891

11:00 A. M.

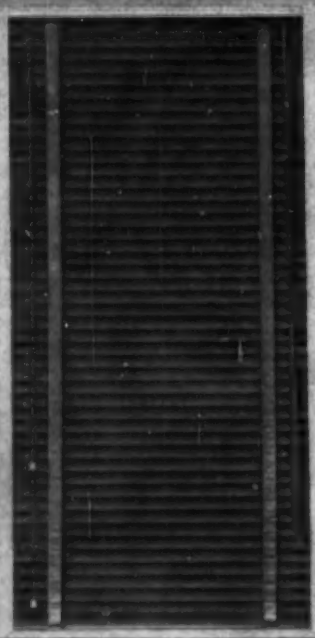
This movie is really sharp! Not a light leak anywhere.

REASON: The windows in this room are light-controlled with Flexalum Audio-Visual Blinds. These blinds make any room theatre-dark anytime. Here's why: (1) more slats per height plus (2) patented notch in each slat that permits adjacent slats to touch, equals (3) no between-slat light leaks. (4) Light-trap channels eliminate around-the-edge light leaks.

11:10 A. M.

The slides look great. Just enough light to take notes.

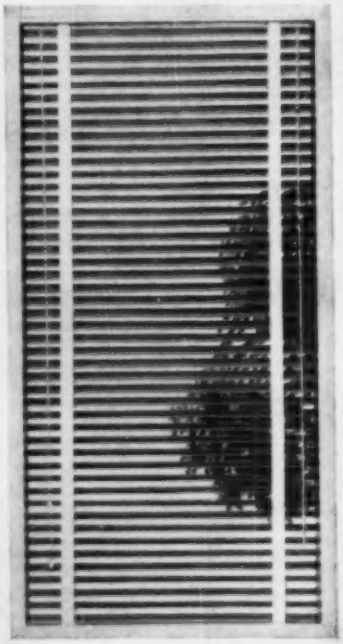
REASON: You get just the degree of light control you need with Flexalum Audio-Visual Blinds. No other form of blackout covering allows you this flexibility. And Flexalum Audio-Visual Blinds will always stop and stay just where you want them. They're precision engineered to operate so flawlessly, *they're guaranteed in writing for five full years.*



11:20 A. M.

Back to groupwork. Full daylight, instantly—no glare.

REASON: Nothing to take down, nothing to tug back. No wasted money for multiple coverings, no wasted classroom minutes. Flexalum Audio-Visual Blinds do the *whole* job — taking you from projection darkness to full light (or anything in between) with just a flick of a nylon cord. The plastic lined side channels eliminate all noisy flutter!



Get full-range light control—at low cost—with *Flexalum*® Audio-Visual Blinds!

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HOW TO DO A BETTER JOB OF TEACHING LANGUAGES

Install Dictalab, the new electronic tape-teaching system that feeds pre-recorded lessons to students in individual, sound-proof booths. Students hear the language spoken correctly, as the teacher recorded it. Nothing to distract attention. From the master console, the teacher can monitor any student at the flick of a switch or speak directly to him . . . give personal attention to students who need it.

Dictalab's the ideal way to teach *mastery* of a language. It features quarter-track recording for tamper-proof student operation and can be used for teaching many other subjects.

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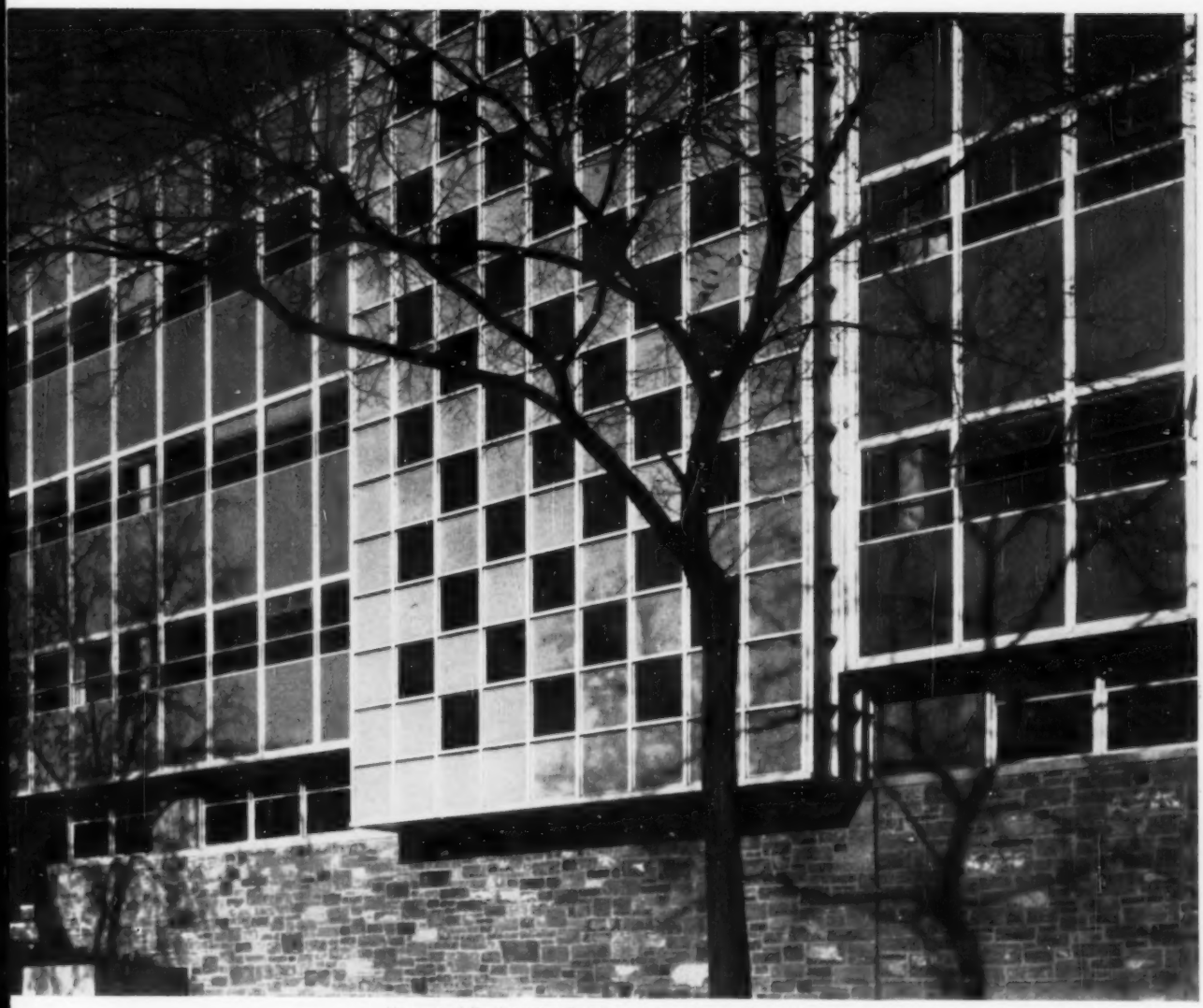
CITY | STATE

A LUPTON aluminum curtain wall gives a modern, airy facade to Penn State's new engineering building

This dynamic facade of the new Hammond Engineering Building at Pennsylvania State University proves that curtain-wall design can be free and individual. Working with standard LUPTON components, architects created a building of personality, purpose, and warm simplicity.

Of course, aluminum gives strength without excess mass to curtain-wall construction. But aluminum curtain wall by LUPTON gives the extra ingredient of dependability. Dependability in things like perfect fit and expert installation—things which only our long experience with aluminum can assure the buyer. Dependability like LUPTON's often spells the difference between an economical and costly construction job.

To look deeper into LUPTON advantages, see Sweet's (Sections 3 and 17) for the LUPTON Curtain Wall and Window catalogs. Then talk with your local LUPTON man, or write us for details.



Hammond Engineering Building, Pennsylvania State University, University Park, Pa. Architects and Engineers: Howell Lewis Shay & Associates, Philadelphia, Pa. Contractor: S. H. Evert Co., Inc., Bloomsburg, Pa.

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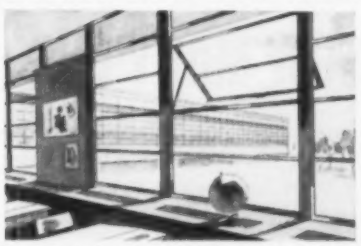
*Trade-Mark

Double-Hung Windows. LUPTON DH-A2 aluminum double-hung windows are custom built for installation in masonry construction or metal curtain walls. Woven-pile weatherstrip and barrel type suspension give smooth operation and weathertight closing.



Projected Windows. LUPTON "Master" windows in projected or casement types—used in curtain walls or equally well in masonry construction. Tubular ventilator members for extra rigidity . . . double weatherstripping, bronze hardware.

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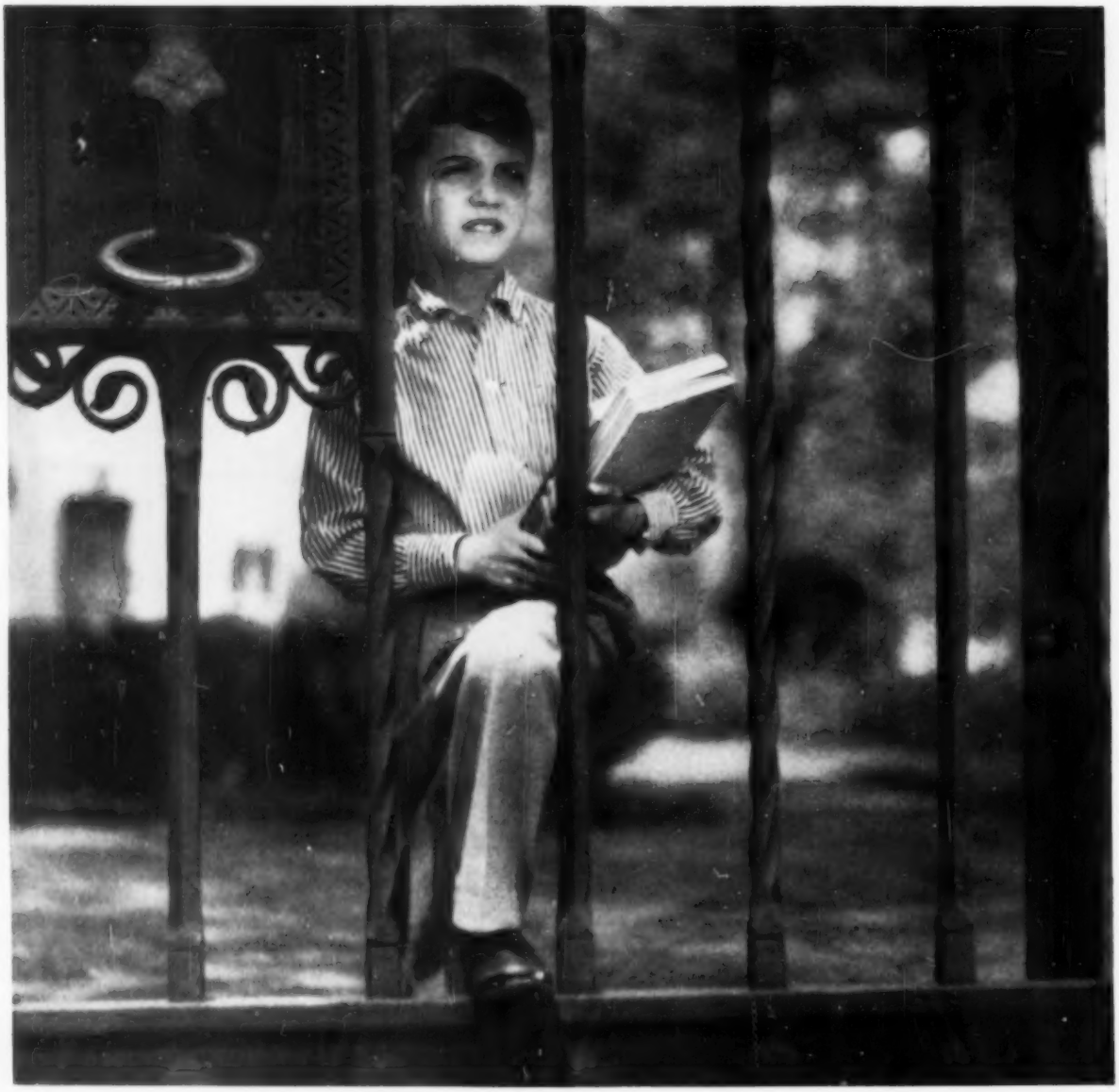

HOW MANY LIKE HIM WILL YOUR SCHOOL LOCK OUT?

Some Schools and Colleges are turning away a third of the students who come to their gates.

Others turn away a half.

And there are some who admit they can take only a tenth of those who apply for admission.

The reasons are usually the same: "Not enough money, not enough faculty, not enough space!"

Does your School need help? To raise money to solve growth problems calls for more than passing the hat among the alumni. It needs careful study and long-range planning. And that is where the AMERICAN CITY BUREAU assists. For we have helped solve money-raising problems for Educational Institutions, both large and small, since 1913!

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The Essentials of Institutional Self-Analysis

John D. Millett
President, Miami University, Oxford, Ohio

IN THE past several years a good many colleges and universities have undertaken some kind of self-study. This endeavor is worth while if institutional self-analysis is carefully planned, fully supported by faculty as well as by trustees and administration, and competently conducted.

There is only one purpose in institutional self-analysis. This is adequate preparation for the future. Every college and university needs to know where it is going. Such planning may be done continually, with all the constituent elements of the academic community participating in a constant review of objectives, present assets, and future needs. In this kind of environment no special effort may be needed at institutional self-analysis.

Circumstances may arise from time to time, however, that make desirable a general pause for stock-taking. For too long a time faculty and administration may have been content to follow existing procedures of time-honored duration. Such an institution resembles the "traditional society" described by W. W. Rostow. The "take-off" into a new era of academic development may result from a sudden influx of students, a sudden drop in enrollment or income, the appearance of new financial resources, a sense of growing competition with other institutions, a change in key faculty or administrative personnel, or comparable events.

There are various items for consideration in an institutional self-analysis. These are not essentially different from the subjects for evaluation in the accreditation process. In Dean Dewey B. Stuit's summary of a conference on accrediting practices in the coming decade held by the National Commission on Accrediting in 1959, eight primary elements of institutional quality are identified.

These eight primary elements are: (1) institutional objectives, (2) curriculum, (3) faculty, (4) teaching, (5) students, (6) student personnel services, (7) institutional research, and (8) library. The factors of institutional resources and administrative organization, important as they may be, are facilitative rather than controlling.

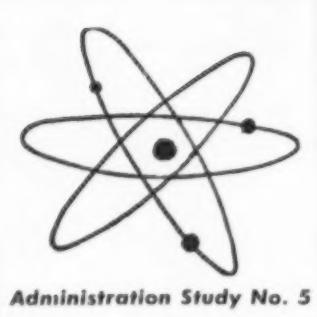
A wealthy educational institution may be also an institution of high educational quality, but the relationship is not necessarily absolute. Moreover, the task of administration is to direct the utilization of resources in such ways as will facilitate the realization of the qualitative goals of the institution.

We hear a great deal these days about "image." It is the latest contribution to the lexicon of society by our advertising friends. The image of a particular college or university is more than a set of educational objectives. It is the product of the relationship that exists between objectives and performance. The image of an institution, now and in the future, is the proper subject for institutional self-analysis.

There is always the issue whether self-analysis can be anything but subjective, can be anything but biased. We in the colleges and universities of this country are as human as anyone else in glossing over our shortcomings and in exaggerating our abilities. Moreover, an academic community, which is necessarily so highly individualistic and must function on the basis of consensus and compromise, cannot afford any process that would divide its constituents into warring factions.

For such reasons the outside consultant is often employed in preference to the self-study. Moreover, the time required for careful self-analysis is often not available from faculty and staff. But if the outside consultant is used, self-study must then begin with the receipt of his report.

In the long run, the hope for institutional improvement means that all constituent elements of the academic community must be involved in the determination of objectives, in the assessment of results, in the creation of a realistic and acceptable image.

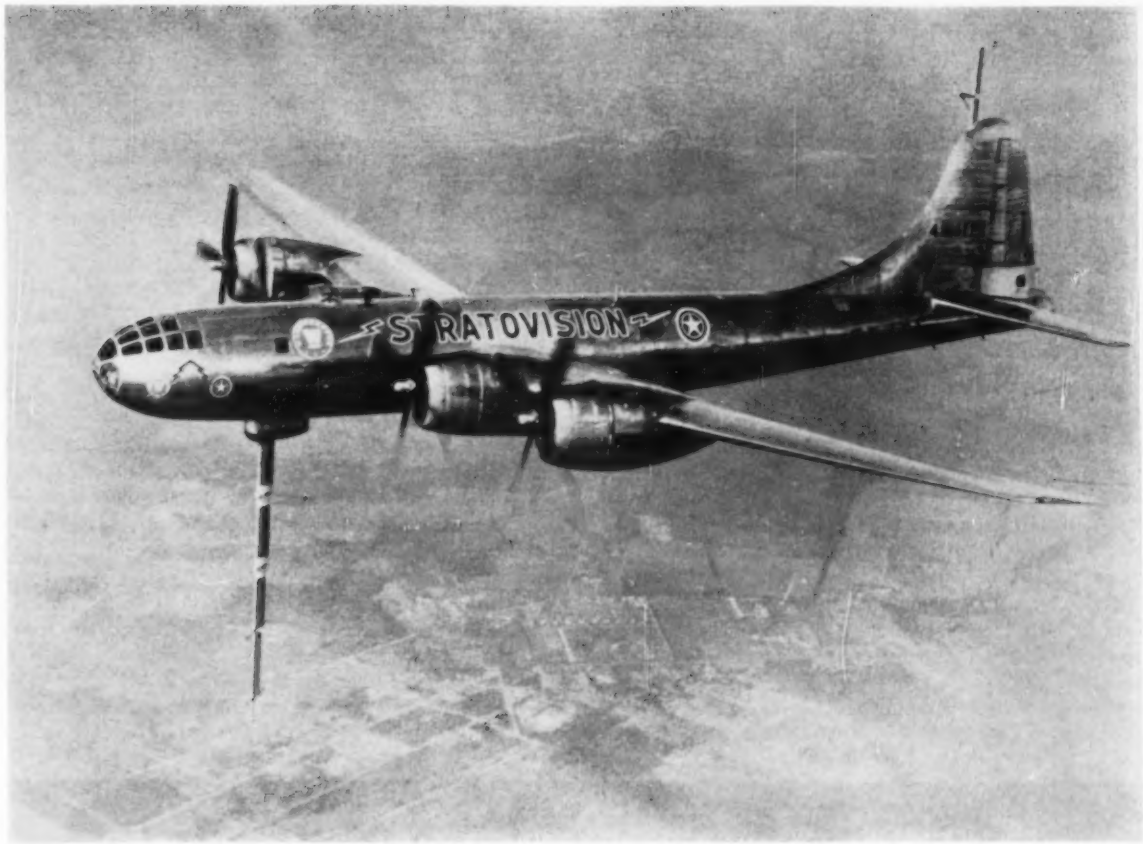


Administration Study No. 5

LOOKING FORWARD

Electronic Tools for Teaching

In a push-button world, ushered in by the age of electronics, it was inevitable that such technics would find their way into teaching. To further that end, College and University Business in this issue considers experiments presently under way that offer possibilities of improving the process of instruction. Among these are: airborne television, the language laboratory, the long-distance telephone, and teaching machines. Readers of this magazine, who are administrators rather than teachers, need to know the latest developments in electronic instruction devices, as it is their responsibility to make available to students and faculty some of these rapidly emerging tools for teaching.



Feasibility of airborne telecasting was publicly demonstrated in 1948, when a stratovision station re-telecast the Republican national convention from an East Coast network as far west as Michigan.

'A Very HIGH School'

Quality Instruction for College Students From a 'Flying Classroom'

B. D. Godbold
Executive Vice President, Midwest Program on Airborne Television Instruction

AN EDUCATIONAL experiment with far-reaching implications will become operational this month in six Midwest states. Called the Midwest Program on Airborne Television Instruction (M.P.A.T.I.), it has attracted nationwide attention not only because of its size, but also because of its novel technical features. For even in the space age, the idea of televising courses of instruction from an aircraft circling at 23,000 feet to thousands of classrooms in several states has some of the attributes of science fiction.

Punsters already have made the obvious link between an airborne instructional program and "higher education."

A London newspaper labeled its account of the airborne program as "A Very High School." No jests are necessary, however, to find important relationships between the Midwest Program and the activities of our institutions.

It might be well to point out some of these links at the start, so that administrators can view the information that follows in a meaningful perspective.

Most obvious and most important is that an educational undertaking of this magnitude, focusing primarily on elementary and secondary education, will have its impact on the ever-increasing number of high school students entering college. There is no gap these days in the educational continuum from kindergarten to graduate school, and this permits us to consider the problems of each level in isolation from the others.

Not well publicized, but significant, too, are the plans of the Midwest Program to transmit courses at the college level. While stress is placed on the elementary and secondary offerings, approximately 20 per cent of the educational fare offered by M.P.A.T.I. will be college-level material. Interestingly enough, some high schools are planning to monitor these college-level courses as preparatory instruction.

The Midwest Program, based at Purdue University, Lafayette, Ind., is heavily dependent for its execution upon 20 colleges and universities, which for several months have been serving as leadership and resource centers for school planning and development. At each one, an M.P.A.T.I. area coordinator and an area committee consisting of distinguished civic and lay leaders provide liaison between the airborne central headquarters and participating schools.

Finally, the wealth of educational experience and counsel available in institutions of higher learning has been tapped abundantly to guide M.P.A.T.I. in curriculum development, course production, and a host of related problems. It becomes apparent, then, that higher education has a vital stake in the "flying classroom" project.

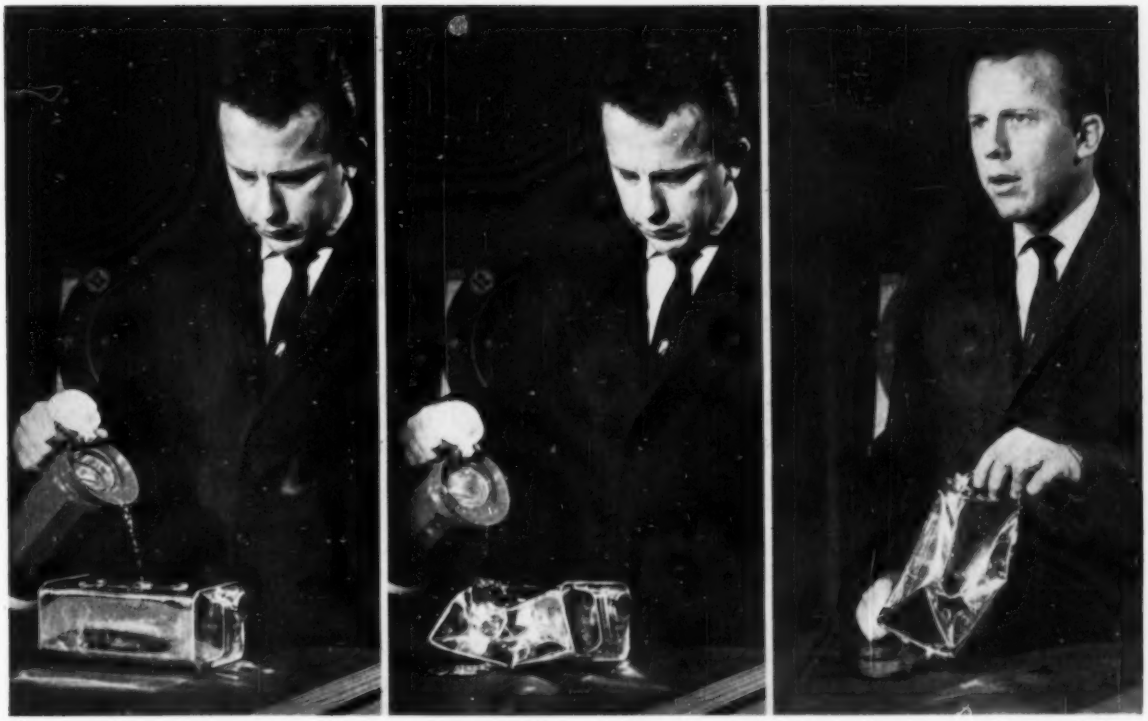
The numerous engineering, educational, financial, organizational and other obstacles faced by this experiment have engendered some doubts as to its feasibility. These doubts have waxed and waned as the developmental phase of the project has moved toward the operational phase — and with good reason, for some of the obstacles have been formidable. Nevertheless, lesson telecasting will begin this month as planned.

Students throughout Indiana and parts of Illinois, Kentucky, Michigan, Ohio and Wisconsin are now viewing televised instructional presentations emanating from two television transmitters aboard a DC-6AB aircraft hovering high over Montpelier, Ind.

The elementary-through-college level courses cover a wide variety of subjects prepared and recorded on video tape by some of the finest teachers in America.

To get this complicated pioneering enterprise off the ground required the cooperative efforts of teachers, school

Judith Waller of the Midwest Program on Airborne Television Instruction is shown explaining to two TV teachers, Geraldine Workman and Loretta Doyle, just how their lessons will be recorded on video tape for telecast.



TV Teacher John Burns demonstrates how weight of atmosphere can crush sturdy metal container.

and university administrators, public officials, and many other leaders in the six-state region. It is a truly regional educational enterprise dedicated to raising the quality of education at a reasonable cost.

M.P.A.T.I. in ETV Context

During the past half-dozen years, many experiments have been conducted in the use of television for teaching. Its application as a teaching medium has increased by leaps and bounds. The Ford Foundation, among others, has channeled millions of dollars into projects designed to develop the potentialities of televised instruction. Today, some 5 million pupils in a thousand public school systems all over the U.S. make regular use of TV instruction.

In higher education, more than a hundred colleges and universities offer televised courses for credit, and more that 250 utilize the Continental Classroom courses televised early each morning over NBC. Educational television stations have multiplied rapidly to a total of 50, and more are on the way. The number of closed-circuit installations in schools and colleges similarly has increased to approximately 150.

The growth of instructional television has been accompanied by considerable research and evaluation regarding its effectiveness. A recent survey of the results of these studies, made by an advisory committee of educators for the M.P.A.T.I., contained this summary:

". . . it can now be stated confidently that students can learn factual content from instruction given by television as well as they can from instruction given in any other way. There are indications that instructional television is as effective as other methods of teaching for producing educational results that are harder to measure — such things as critical thinking, self-insight, and attitude change. In the latter areas, however, there is much exploration still to be done, chiefly because there are limited data for these with relation to any method of instruction."

In view of the widespread and growing use of instructional television and its acceptance in many cases as being at least equal in effectiveness to conventional instruction, why introduce an airborne system for transmitting television? Why not continue expanding the ground-based open and closed circuit systems rather than undertake a radically different and apparently expensive approach?

Good reasons exist for trying out an airborne system. A compelling one has to do with range. A ground-based television station transmits a signal a distance of about 60 miles, at which point the signal leaves the earth's curved surface at a tangent. In contrast, the signal from a transmitter aboard an aircraft at 23,000 feet should reach out 150 to 200 miles. This means that the receiving area is increased almost tenfold. Furthermore, with a much larger coverage, including many more school systems, greater resources are available to develop and to present instruction of high quality. The talents and facilities of a multi-state area rather than a single community can be drawn upon by the airborne enterprise.

Objectives of M.P.A.T.I.

The Midwest Program on Airborne Television Instruction has six specific objectives:

1. To increase the range of subjects being offered in the schools of the Midwest, particularly in the smaller

schools. Because of lack of facilities and equipment for teaching competence, many schools are unable to offer instruction in certain specialized areas such as art, music, laboratory sciences, and languages.

2. To improve the quality of instruction in courses offered generally in all schools: history, geography, social sciences, mathematics and so on. Even in these types of courses, the lack of an adequate number of highly qualified teachers has resulted in teaching of a relatively low caliber in some localities.

3. To conduct the project so that the first two objectives are achieved more economically than by other means.

4. To determine the distance at which a consistently satisfactory television signal can be received from an aircraft. In theory, this should be about 225 miles from an aircraft at 23,000 feet; however, the maximum effective range can be determined only by experimentation.

5. To determine whether the television channel can be divided into two channels, whereby the number of channels available for both educational and commercial television could be doubled.

6. To conduct the project in a manner that will assist in developing an organization for the long-range financing and operation of the program by local and state educational authorities.

Facts About Program

Schedule and Courses. M.P.A.T.I. has scheduled a demonstration period beginning this month, until the close of schools in May. This is planned as a time for installation of equipment in schools and for the testing of both receiving and transmitting equipment — in effect, a rehearsal prior to the start of the first full academic year of lesson telecasts next September.

The initial stage of the demonstration period will be devoted to signal testing, *i.e.* transmitting a test pattern to receivers in participating schools. When M.P.A.T.I. is assured that a significantly large proportion of the receiving schools are picking up a consistently strong and clear signal, the program will start transmitting sample lessons. During the latter stage, the two transmitters on the aircraft will be in operation from 9 a.m. to 12 noon four days a week, Monday through Thursday, delivering sample instructional material in college chemistry and algebra, arithmetic, history, science, art, music and beginning French.

This will afford schools and colleges an opportunity to view the courses and determine whether they wish to utilize the full offering of courses the following fall.

During the first full academic year, the aircraft's transmitters will double their output by beaming lessons for six hours a day, four days a week. Most of the demonstration period courses will be repeated in full, and a number of new ones added at all levels, elementary, secondary and college. About 80 per cent of the courses will be tailored to the first two levels.

During the summer of 1961, between the demonstration period and the start of the first full academic year, the aircraft is scheduled to transmit material to dozens of workshops designed to assist classroom teachers in the use of the televised courses. The workshops, under M.P.A.T.I. guidance, will be conducted at schools and cooperating colleges and universities in the region.

Technical Information. Courses are being recorded on tape by carefully selected teachers presently stationed at six television production centers. Three of these are ETV stations, and the other three are university television production units. The finished master tapes are sent from the production centers to M.P.A.T.I.'s tape processing center at Purdue University. Here they are previewed by a panel of educators and television experts.

The taped lessons will be placed aboard the aircraft — enough for two days of transmitting at a time — as they are needed.

Transmitting equipment on the aircraft has been designed, installed and is being operated by Westinghouse Corporation under contract to M.P.A.T.I. Two four-engine DC-6AB aircraft, each similarly equipped, are being used in the program. One will serve as a stand-by, ready to take off in case technical trouble requires the first aircraft to cease telecasting or grounds it altogether. The second aircraft also will provide a backup to the primary aircraft, allowing time for maintenance.

Schools may use the airborne offerings at no charge. They must pay for their own receiving equipment, however, and for printed course guides for the classroom teachers. These contain a lesson-by-lesson description of the airborne telecasts and are priced at $2 each. Schools may obtain a booklet from M.P.A.T.I. setting up specifications for the receiving equipment. It has been estimated that a school at mid-range from the airborne transmitters could install an antenna and equip five classrooms at a cost of about $500 per room.

Finances. The total cost of the project is estimated at $7,750,000 to cover the experimental period ending in May of 1962. This money is being contributed by the Ford Foundation and other foundations and corporations. Ford has granted $4.5 million to the project, and efforts are continuing to raise the other required monies, primarily by appeals to large corporations. Several large business organizations and foundations have made sizable contributions.

Following is a breakdown into major categories of the budget for the project, assuming a completion date of May 31, 1962.

Aircraft and transmitting equipment, including operating costs	$3,850,000
Preparation of 28 courses of instruction, including tape and duplicating costs	2,410,000
Professional and technical assistance to schools and colleges	470,000
Evaluation	80,000
Public information, including brochures, newsletters and other publications	110,000
Facilities, utilities, office supplies, and services	125,000
Salaries, wages and travel	390,000
Consultants and professional services	110,000
Special conferences and workshops	25,000
Contingency	190,000
	$7,750,000

NOTE: The purchase price of the aircraft was not included in these data. Financing of the aircraft purchase was handled outside the budget and disposition at the end of the project will also be a nonbudget transaction.

Based on the experience thus far it has been estimated that the project could be continued after May 1962 at a minimum annual cost of about $2 million. If a substantial number of new courses were added each year, the annual operating costs would perhaps range up to $5 million.

Quantity and Quality

As an experiment, or as a yearly ongoing operation, the Midwest Program achieves economy by its scope. It has been estimated that there are 13,000 schools and colleges and about 5 million students within range of the airborne telecasts. From the estimated operating costs, it is apparent that if 1 million of these 5 million students eventually participate in the program, the operating costs amount to from $2 to $5 per student per year.

These figures are well within reach of the average school system. They do point up, however, the need to lay plans for a permanent organization that can take over management and financing of the airborne system if, at the end of its experimental phase, it is judged to merit continuation. Continuing activity must be so organized as to reflect the will of the people in the Midwest and assure them of receiving the kind of educational service they want at a price they can afford.

The organization could take the form of a nonprofit corporation, with an appropriate controlling board providing the program to participating schools and colleges on a prorata basis. It has been suggested, too, that the permanent organization might be either an association of school districts or an agency created by an interstate compact.

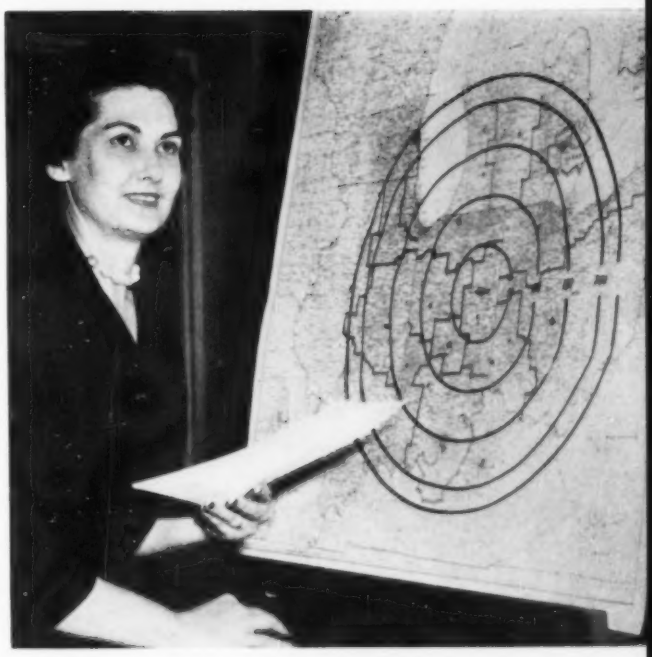
Regardless of the final form that such a program might take, a precedent has been established for maintaining the highest quality possible. The teachers selected to produce the courses were chosen by a highly qualified selection panel from among 300 applicants. The courses they are producing are subject to severe review and criticism before they are finally accepted.

Participating schools have been urged to install only the most reputable and accurate receiving equipment. The lessons they will view — the entire M.P.A.T.I. curriculum, in fact — is an outgrowth of long deliberations by a distinguished curriculum policy and planning committee composed of the top educators and administrators from the Midwest region.

All aspects of the program — educational, technical, economic and administrative-managerial — are being evaluated during the planning and execution stages rather than on an ex post facto basis at the end of the project phase. An Evaluation Advisory Council has been formed, a coordinator of evaluation added to the staff, and consultation sought from specialists in the U. S. Office of Education and from testing and evaluating organizations.

This group will draw the final verdict for the airborne program out of the experiences of the thousands of participating schools. We can expect airborne television instruction to continue to exert its influences on higher education and every level of education in the Midwest, and eventually in other parts of the country and the world if educators render the following judgment:

"The Midwest Program on Airborne Television Instruction delivered quality education on a quantitative basis at a cost that is within reach of the average school." ■



Geraldine Workman (above) is one of the first 16 selected to produce courses for the Midwest Program on Airborne Television Instruction, headquartered at Purdue University, Lafayette, Ind. Mrs. Workman will teach world history and geography to schools in six Midwest states that will receive instructional telecasts from an airplane flying 23,000 feet over north central Indiana. Marlene Beigel (below), arithmetic teacher, works on course outline for her airborne TV lessons.

LITERATURE classes are held in rooms next to college library so that books are at hand. Preparing for long-distance phone call to Malcolm Brinnin, biographer, are the students and John H. Thompson, English instructor.

'Hello, Mr. Romney,
Stephens College girls calling'

Interviews by Long-Distance Stimulate Learning Rate

Harold Rubin
Director of Information
Stephens College, Columbia, Mo.

IS THE cost too fantastic to have such personages as George Romney of American Motors, Norman Cousins of the *Saturday Review*, Congressman Chester Bowles, Gov. Orval Faubus, Economist Dexter Keezer, or Katherine Anne Porter, the writer, available for question-and-answer sessions with individual college classes?

For the last two years Stephens College, Columbia, Mo., has been proving that the idea not only is possible but is economically feasible. In fact, it is relatively inexpensive. Stephens is a residential college for 1500 women.

Throughout the 1959-60 college year, dozens of notables were interviewed by our students in four regular three-hour-credit courses. The telephone interview technic provided enthusiastic new impetus for the courses.

The specialists interviewed did not come to the campus. They didn't even leave their offices. For both individual and college this represented a gigantic saving in time and expense. There were no travel bills to be reimbursed, no lecture fees, greeting committees to be set up.

Yet what the faculty wanted was provided: a chance for qualified persons in each of four fields to answer direct questions from individual students, to create in the students an awareness of how classroom learning applies to events and life in the world they will face when they leave college.

The maximum cost of our telephone interviewing program for four classes is approximately $5000 for the college year, exclusive of academic salaries and other developmental costs associated with the pilot project.

The program at Stephens was conceived by James Burkhart of the social sciences faculty. In his American Government course he sought a way to bring contemporary government and politics (and people who could explain how it works in America today, and why it works this way) into his classroom.

Why not, he decided, ask experts to talk to his class by telephone? Why not interview, over the telephone,

AMERICAN GOVERNMENT students smile at answer being given by Interviewee James Hagerty.

capable leaders in labor, local and state and national government, ward politics, lobbying, management, and national politics?

Urged on by Dr. Seymour A. Smith, president of Stephens, Mr. Burkhart put his idea into effect for the 1958-59 year. Help came from two off-campus sources: a small grant from the Citizenship Clearing House, a national organization to promote political participation and awareness among college students, and technical assistance and equipment donated by the General Telephone Company of Missouri.

The telephone firm furnished and installed in the classroom used by students of American Government these items: (1) a telephone connected to the college's switchboard, (2) the same telephone connected to a sensitive microphone placed on a table in the center of the room, so it could pick up each student's voice from where she sat in the classroom, and (3) an amplifier and a loud-speaker. The microphone would feed students' questions into the long-distance telephone connection; the amplifier and loud-speaker would take the person's voice from the telephone line and "broadcast" it through the loud-speaker to the whole class.

Now that he had the "how," Mr. Burkhart had to arrange for the "who." Drawing upon his own contacts in the fields of government, labor, management, politics, writing and farming, and developing a list of notables from whom his students might best get answers, he started writing letters.

In each letter he asked if the recipient would take the time (roughly 20 to 40 minutes) to participate in a question-and-answer session with Stephens students; all questions would be in the field in which the recipient of the letter was a specialist. The questions would not be supplied to the recipient in advance.

When he received a "yes" reply (he was turned down by less than 2 per cent of the persons to whom he wrote), he sent a second letter, setting up the exact day and time for the long-distance call. Obviously he scheduled the calls at the time and on the days the class met.

The person to be interviewed gave a telephone number where he could be reached on the call day. Thus some class calls could go through at the less expensive station-to-station rate; others were person-to-person calls.

The students did not go in to these interview sessions unprepared. For the interview with Norman Cousins, editor of the *Saturday Review*, a writer who has done a great deal of work and study on nuclear war and its consequences, the students were told a week in advance of the call that they would interview him. Each of the 25 students prepared a full background on Mr. Cousins, his interests, and the fields in which he was involved. Then the students each prepared a list of questions on Hiroshima, disarmament, "clean" bombs, underground testing, and the like.

On the day set for the call, class met as usual. One student placed the call to Mr. Cousins' office in New York City. To set the tone of the call,

Mr. Burkhart chatted with Mr. Cousins for about three minutes informally.

Then the students took over. Each in turn put queries to Mr. Cousins. They asked such questions as: "Is the military buildup a compulsive race toward war?" "What are the political effects of weapons themselves?" "Is there really such a thing as a 'clean bomb'?"

Direct answers came back. A New York City call from Columbia, Mo., lasting 35 minutes cost $14.35.

Since the interviewees did not know in advance what the specific questions would be, their answers came from personal knowledge of their fields. When an answer developed a whole new, surprising line of thought, the students could and did ignore their prepared queries to fire questions in line with new ideas the interviewee had projected.

In the course of that year, our American Government students developed a more immediate awareness of contemporary problems. They began to understand how the material they were receiving in lectures, texts, field trips, and the syllabus fitted into what was going on in the world; they became more enthusiastic about the course and their regular work in it.

The interviewees that first year included a farm union leader, Republican and Democratic committeewomen, the Republican and Democratic national committee chairmen, lobbyists, the mayor of Little Rock, Ark., and James Hagerty, presidential press secretary.

For 1959-60 the college wanted to made an accurate test to determine the true effectiveness of a telephone interview program used as a completely planned part of course work. Stephens decided to hold two classes in a subject, using telephone interviews in one and using regular course work without such interviews in the other. All work in both classes would be identical except for the long-distance interviews.

Stephens applied to the U.S. Office of Education for a grant to conduct such a year-long test. This was approved May 1959 by the New Media Division of the U.S. Department of Health, Education and Welfare, which gave a grant to Stephens for research on the program and its values.

Four courses were set up for the test: Mr. Burkhart's American Government, B. L. Osborne's Basic Beliefs in Human Experience, John Thompson's Masterpieces of World Literature, and Kermit Crawley's Introduction to Business.

Each faculty member taught at least two sections in the same course. As planned, one section used regular course work plus telephone interviews every two weeks; the other section did regular course work without any such interviews.

Each faculty member set up interviews for his own class, contacting persons involved in the special field in which the course work was taught.

In Masterpieces of World Literature, for example, Mr. Thompson's students interviewed contemporary authors and critics who not only knew about today's writers but also were involved in one way or another with literature's greats. Mr. Thompson scheduled the interviews as closely as possible to the date the author-interviewee was having his latest book published.

Thus a call was set up to John Malcolm Brinnin at Cambridge, Mass., on Nov. 10, 1959, the same week that Mr. Brinnin's book, "The Third Rose: Gertrude Stein and Her World," was published. Typical of the questions fired at Mr. Brinnin was: "You quote Miss Stein as saying, 'I have never understood how people could labor over a manuscript, writing and rewriting it many times. . .'" To which Mr. Brinnin answered: "She felt that if the writer has a message, this dominates what he has to say, and the force will dictate the way he says it. I think, however, we find that most writers have to revise. It's true that if you have something to say, it will come out and revisions will be minor. But when people have nothing to say, no amount of revision will help."

The class of students used 40 minutes of long-distance time; the cost was $17.30.

The interview with Richard Ellmann of Northwestern University concerned his newly published biography of James Joyce, which later won for him the National Book Award. The students used 45 minutes of telephone time, at a cost of $14.05.

The range of persons interviewed by students in the Masterpieces class included Katherine Anne Porter, the novelist, in Washington, D.C. (37 minutes, $15.85); Jean Stafford, poet and short story writer, twice holder of a Guggenheim fellowship, and National Press Club award winner; W. Richard Poirier of Harvard University, editor of "O. Henry Prize Stories" (41 minutes, $17.70), and John Ciardi, the poet, at Metuchen, N.J. (38 minutes, $16.40).

ENLARGED PICTURE (Mrs. Katie Louchheim, Democratic national committeewoman) helps students visualize person they are questioning via telephone.

In one interview session, with Budd Schulberg, author-playwright-scenarist, at Princeton, N.J., interest ran so high that it could not be completed in one class period. Mr. Schulberg and the class agreed to continue the telephone interview at the next class period two days later. The call on February 16 for 36 minutes cost $15.60, and the call on February 18 for another 18 minutes cost $8.90. This interview drew other faculty members into the classroom to listen and learn with the students.

One of the fascinations of such calls was the unforeseen happenings: One author halted the interview temporarily to answer his doorbell, where he found a messenger delivering galley proofs for his next book!

In the business education course, Mr. Crawley's students queried such persons as Alice K. Leopold, assistant to the Secretary of Labor at Washington, D.C. (26 minutes, $10.70); Economist Dexter Keezer, vice president and director of the economics department of McGraw-Hill Book Company, Inc., at New York City (30 minutes, $12.35), and Mary Roebling, member of the board of directors of the American Stock Exchange and president of the Trenton Trust Company at Trenton, N.J. (13 minutes, $6.40).

The versatility of such a method was demonstrated also in the philosophy course. Students held question-and-answer calls across town and across the world. On the Jewish high holidays they spoke to Rabbi Abraham Piemontel a dozen blocks away in Columbia, while he was preparing for Yom Kippur services that evening and the following day; he was in the Hillel Foundation; they were in their classroom. Cost of the call: nothing.

These philosophy students in their course in Basic Beliefs also took part in a three-way interview. In Chicago at his telephone was Dr. Jaroslav Pelikan, professor of historical theology at the University of Chicago; in St. Louis was the Rev. Walter Ong, S.J., faculty member at St. Louis University; in Columbia was Dr. Lewis Spitz, associate professor of history at the University of Missouri, who served as moderator for the call. The 36 minute open-end theological discussion cost $17.25.

In American Government, Mr. Burkhart's students ran the gamut of political experiences. They interviewed Socialist Norman Thomas in New York City (39 minutes, $15.95); Gov. Edmond Brown of California at Sacramento (10 minutes, $4.95); Connecticut Congressman Chester Bowles at Washington, D.C. (42 minutes, $17.10); Gov. Mark Hatfield of Oregon at Salem (9 minutes, $4.95); Gov. David Lawrence of Pennsylvania, at Harrisburg (28 minutes, $15.10). They spoke to James A. Farley, Democratic leader and former Postmaster General, at New York City (49 minutes, $20.80), and to Gov. Faubus at Little Rock, Ark. (23 minutes, $6.35).

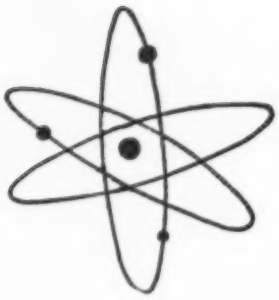
The students spoke to one woman political leader while she was awaiting an outgoing flight at the Kansas City airport. They spoke to Republicans and Democrats, to local level leaders, as well as national leaders.

TEACHING TECHNIC requires only telephone, loud-speaker, amplifier and a sensitive microphone placed on table in center of classroom.

After Premier Khrushchev's visit to the Roswell Garst farm near Coon Rapids, Iowa, the students interviewed the American farmer-host (41 minutes, $10.35).

In assessing the cost of setting up such a project, one must account for the first major outlay — the equipment involved. Installation and service for the telephone equipment used (the telephone, its connection, the microphone, the amplifier, and the loud-speaker for each of four classrooms) came to $2142.75. Aside from the instructional salary costs of developing this project, this was the largest single item in the budget. The calls themselves, and the long-distance toll charges, came to much less. Stephens' outlay here was no more than $1200.

Because a great number of such interviews and calls were planned by Stephens under the U.S. Office of Education grant, a fund was budgeted for honorariums, at $25 for each person interviewed. This came to approximately $1800. In some cases the interviewees made donations of the honorariums to their favorite causes; some did not accept them; some returned them; some requested that books be purchased. ■



Walter A. Wittich
Professor of Education, University of Wisconsin, Madison

New Key to Learning:

FRESH into the orbit of educational space comes the wonderfully intriguing learning device, the teaching machine. What is the teaching machine? To what areas of classroom work can it be applied? What are the problems involved in selecting useful models and integrating them into classroom learning situations? These and many other questions confront the administrator who is making decisions about acquiring any one of 20 or more models currently available for purchase.

Automatic Methods in Teaching. Just as we have many examples of automatic technics in industry that exceed human precision and performance, so have we teaching machine technics that in defined areas of instruction may economically replace teacher functions.

In industry, magnetic tapes far exceed the accuracy of the best court stenographers. Dial telephone systems are much more reliable than the most skillfully trained human switchboard operators. Monotype on paper works far beyond the range of human linotype operators.

A parallel may be drawn in education. Is it not reasonable to assume that some of the same mechanical devices that currently work so methodically in industrial situations can be applied to drill, memory or direct answer evaluation technics in education?

Early Experiments. The teaching machine was investigated by Sidney Pressey as early as 1924.[1] Dr. Pressey designed several teaching machines that were used to measure information known to the student operating the machine. In this device, the student referred to a question and to multiple-choice answers. He selected the answer, pressed the numbered button that corresponded to the answer, and the device indicated whether his judgment was correct or wrong. If it was wrong, the student had to continue making choices until he selected the right one.

Obviously, in the process of operating such a machine, learning could take place as well as evaluation. There was no delay following the response of the student; he knew immediately what the evaluation of his judgment had been and could continue accordingly.

More recently, B. F. Skinner has resumed experimental research with teaching machines of a similar type.[2] The Skinner machines are not only measures of information, but are teaching devices in which the learner proceeds through a sequence of judgments that are sequential or developmental in nature.

The material to be learned and evaluated appears on the face of this machine, one frame at a time. One frame of the material is visible in a small window. The student writes his response on an exposed section of paper that appears in a slot near this window. By moving a lever, he exposes the correct response and compares this with the written response. If the answer is correct, he moves the machine so that the succeeding frame appears, and proceeds to read and learn and respond. If the response is incorrect, the same question reappears later to give the student a second opportunity to react.

How the Machine Teaches. Dr. Skinner describes the characteristics of his machine as follows:

"It is a labor saving device which can bring one set of prepared, programed information into contact with an indefinite number of students. This may suggest mass production, but the effect upon each student is surprisingly like that of a private tutor. The comparison holds in several respects.

"1. There is a constant interchange between the programed materials and the student. Unlike lectures, textbooks and the usual audio-visual aids, the machine induces sustained activity. The student is always alert and busy.

"2. Like a good tutor, the machine insists that a given point be thoroughly understood, either frame by frame or step by step, before the student moves on. Lectures, textbooks and their mechanized equivalents, on the other hand, proceed without making sure that the student understands and easily leave him behind.

"3. Like a good tutor, the machine presents just that material for which the student is ready. It asks him to take only that step which he is at the moment best equipped and most likely to take.

"4. Like a skillful tutor, the machine helps the student to come up with the right answer. It does this in part through the orderly construction of the programed information and in part with technics of hinting, prompting,

[1]Pressey, Sidney: A Simple Apparatus Which Gives Tests and Scores — and Teaches, School and Society 23:373-376 (March 20), 1926.

[2]Skinner, B. F.: Teaching Machines, Science 128:969-977 (October 24), 1958.

the 'Mechanized Tutor'

suggesting and so on, derived from an analysis of verbal behavior.

"5. The machine, like a private tutor, reinforces the student for every correct response, using this immediate feedback not only to shape his behavior most efficiently but to maintain it in strength in a manner which the layman would describe as 'holding the student's interest.'"

The unique characteristics of the teaching machine have been stated in a similar way by A. A. Lumsdaine:[3]

"All of the devices that have been called teaching machines represent some form of variation on what can be called the Socratic method of teaching. They present the individual student with programs of questions and answers, problems to be solved, or exercises to be performed. In addition, however, they always provide some type of automatic feedback or correction to the student so that he is immediately informed of his progress at each step and given a basis for correcting his errors. They thus differ from films, television and most other audio-visual media as ordinarily utilized because of three important properties:

"1. Continuous active student response is required, providing explicit practice and testing of each step of what is to be learned.

"2. A basis is provided for informing the student with minimal delay whether each response he makes is correct, leading him directly or indirectly to correction of his errors.

"3. The student proceeds on an individual basis at his own rate – faster students romping through an instructional sequence very rapidly, slower students being tutored as slowly as necessary, with indefinite patience to meet their special needs.

"The devices thus represent a way of providing a preprogramed study-practice combination which simulates, in partially or fully automated fashion, the functions of a private tutor in recitation and practice, with immediate correction of errors and feedback to the student."

The Art of Programing. Electronically, the teaching machine is well developed. The real art of the teaching

For the first time in history, teaching machines and programed instruction material are being marketed on a nationwide basis. Observing the demonstration of a new, inexpensive technic, extensively tested by the government and numerous colleges and universities, is Edward J. McCabe Jr., publisher of the Book of Knowledge and other works.

[3]Lumsdaine, A. A.: Teaching Machines and Self-Instructional Materials. Audio-Visual Communication Review 7:163-179 (Summer) 1959.

machine lies in creating the "content" or "lesson sequences" or "programs" that are the grist for the machine – the input which is the substance to be reacted to and learned by the student.

The possibility of the teaching machine to instruct is as wide as the imagination of the teacher, the psychologist, or the constructor's ability to develop the kind of sequential data that is fed into the machinery itself.

Which Kind of Learning? The well constructed and wisely programed teaching machine can serve functional purposes in the classroom. It is widely agreed that the programing of the actual materials that are to be fed into the machine should command the attention of the psychologist, the classroom instructor, the curriculum committee, and the department head as all of them observe the tasks of the student and the manner in which the student reacts to teaching machine opportunities.

Eugene Galanter, associate professor of psychology at the University of Pennsylvania, recently commented on the kind of learning he believed could most efficiently be taught via teaching machine methods.

Dr. Galanter believes that there are two basic forms or areas of learning: (1) stochastic learning, which enables the learner to extract from the contingency between events the aspects that when one occurs, the other will; (trial and error, probability and rote learning relate to stochastic learning); (2) recursive learning, which involves the construction of plans for "figuring out the world."

The department head's immediate task is to understand what the teaching machine can accomplish and what it cannot.

Today, educators might well heed the suggestions made more than 30 years ago by Dr. Pressey as he clearly described some of his basic concepts of the teaching machine. According to him, the teaching machine should:

1. Keep the question or problem before the learner until he finds the correct answer.

2. Immediately inform the learner about the correctness of his response.

3. Continue to confront the learner with questions until a realistic lesson sequence or unit sequence has been accomplished or learned.

4. Eliminate a step or question from further consideration once the correct answer has been learned.

5. Save the teacher time, as it should represent the most economical avenue to achieve a given learning outcome.

6. Handle certain types of routine teaching, thus freeing the instructor to do more real teaching of the type that only he can do.

Teaching Machine and A-V Technics. It is possible to envision teaching with the use of audio-visual materials to create resource learning opportunities and, at the same time, the use of teaching machines to carry on independent instruction and evaluation by individual students. In such subjects as language arts and science, the student could make effective use of sound teaching films, prerecorded tapes, filmstrips, slides and mechanical paraphernalia in the form of laboratory apparatus on models and mockups. His experiences with these materials could provide understandings: information of the more subtle kind that cannot easily be worked out in teaching machine programs. ■

Presenting 35mm. microfilmed or motion picture material to the student and examining him on the points presented, this automatic, random-access film projector can discover the student's errors in understanding and correct them before they impede his progress. Key sections of the machine are: (1) selector buttons; (2) selector indicator; (3) view button; (4) motion button; (5) on-off switch; (6) focus control; (7) viewing screen; (8) hood; (9) recorder tape view window; (10) recorder tape and take-up mechanism.

The Well Planned Language Lab at Memphis State . . .

Charles Long
Professor, Foreign Language Department
Memphis State University, Memphis, Tenn.

. . . accelerates learning and helps eliminate the southern accent

THE problem of keeping the language facilities at Memphis State up to date was, fortunately, not a difficult one. Like other progressive institutions, we had decided to install a language laboratory, and the construction plans of our college fitted perfectly into the need to provide this better learning environment for our language students.

Plans had already been made to erect a new building, of which the language department would be a part. Our architect made the language laboratory part of the building from its inception.

The major problem we faced was to choose the system that would best satisfy needs and still stay within the allotted budget. For a period of three years we had been building up a file on language laboratories, and we sent faculty members to other universities to observe these laboratories in use. By this means we were able to determine exactly what was available and to adapt this information to our own needs and desires.

The result was a specific table of needs: We wanted a control board, from which we could send out language material from several sources. It would then be possible for students studying as many as four different languages to work comfortably and, if necessary, simultaneously. We wanted a separate booth for each of 30 students. In addition, we desired some means of communicating specifically and effectively with each student booth individually and in a group.

Another major prerequisite was a central monitoring system that would enable us to make a recording of the voice and preserve it for later reference. But there is a

catch to this — it has to be done without the student being aware of it. We also wanted to be able to listen to each booth separately without the student's being conscious of eavesdropping.

We also needed a system that would allow a student to use a booth on a separate, or noncontrolled, basis. In this manner, any number of students working independently could record their voices on individual tapes and then erase only their own voices, leaving the native voice unerased on this individual master tape. We wanted the machine at the student's booth to be able to record and play a student's voice on a tape already containing a native's recorded voice, but the machine must be able to erase the student's voice only. To do this we knew we needed some easy method of making master tapes, some kind of control system that would enable us to make 30 master tapes at once.

These were what we considered to be the essential qualities. Actual procurement of the system was then placed in the hands of the architect who, after apprising the various manufacturers of our specifications, opened the bidding. Oddly enough, the one manufacturer able to meet all our specifications turned in the lowest bid. Actual cost of the 30 place installation, with a master console and furniture, was $12,000, actually less than the money originally allotted for the language laboratory when the building was designed.

In addition, we found that the equipment we purchased had many additional features we had not included in our specifications. These have proved themselves of great value. High on the list were tamperproof controls, which prevent tape breakage and accidental erasing. This was made possible by a feature we found on no other manufacturer's equipment — a quarter track recording.

The tape is actually divided into four recording tracks so that as the tape moves from left to right, Track No. 1 carries the master recording and Track No. 3 the student's response. Should the tape be reversed, the master wording is then made on Track No. 4 and the student response recording on Track No. 2. Thus, under no circumstance is it possible for the master track recording to come in contact with the student record head and be accidently erased or altered.

Also, our equipment has a high-speed backward and forward control, combined with a device that counts the number of revolutions, thereby making any part of a tape almost immediately accessible.

Equipment Has Seven Audio Sources

Another extremely useful feature has widened our teaching concepts considerably. This equipment provides seven audio sources: three tape recordings, a record player, a radio, one television set, and one film source. Thus we have been making great use of foreign language broadcasts from FM and short-wave stations. A master screen enables us to pipe in films and TV shows to all or part of the class.

Since the sound is fed directly to each student's booth, it is possible to teach some of the students in, let's say, German; show another group a Spanish film, while a third

CONTROL BOARD (left) at Memphis State permits instruction in four different languages simultaneously. In fact, three tape recordings, a record player, a radio, one television source, and one film source are available for teaching purposes. Great use is being made of foreign language broadcasts from FM and short-wave stations. A master screen permits piping in of films and TV shows to the class.

THIRTY CUBICLES, three rows of 10 each (opposite page), comprise the Memphis State language laboratory. The acoustical steel partitions absorb a great deal of extraneous sound, so complete soundproofing proved unnecessary. However, if a language laboratory is to be installed in a busy part of the campus or on a noisy thoroughfare, complete soundproofing is highly recommended. Air conditioning is pretty much a standard item in Memphis.

segment of the class may be listening to a French radio broadcast.

Since the building was constructed with full knowledge that a language laboratory would be installed, we naturally included such ideas as soundproofing and air conditioning. In Memphis, air conditioning is pretty much a standard item in any event and was not installed simply to cool the equipment. To our surprise, we found that soundproofing of the room was not completely necessary. The partitions that made up the booths are constructed of acoustical steel, which absorbs a great deal of extraneous sound. However, if a language laboratory is to be installed on or near a busy part of the campus or on a noisy thoroughfare, I suggest complete soundproofing be used.

At Memphis State, for example, we ran into one minor problem that couldn't have been foreseen. A bell had been placed just outside the laboratory and for the first few weeks a strange ringing penetrated our tapes. We finally traced it to its source and simply removed the bell, but not without some chagrin — after all our careful planning.

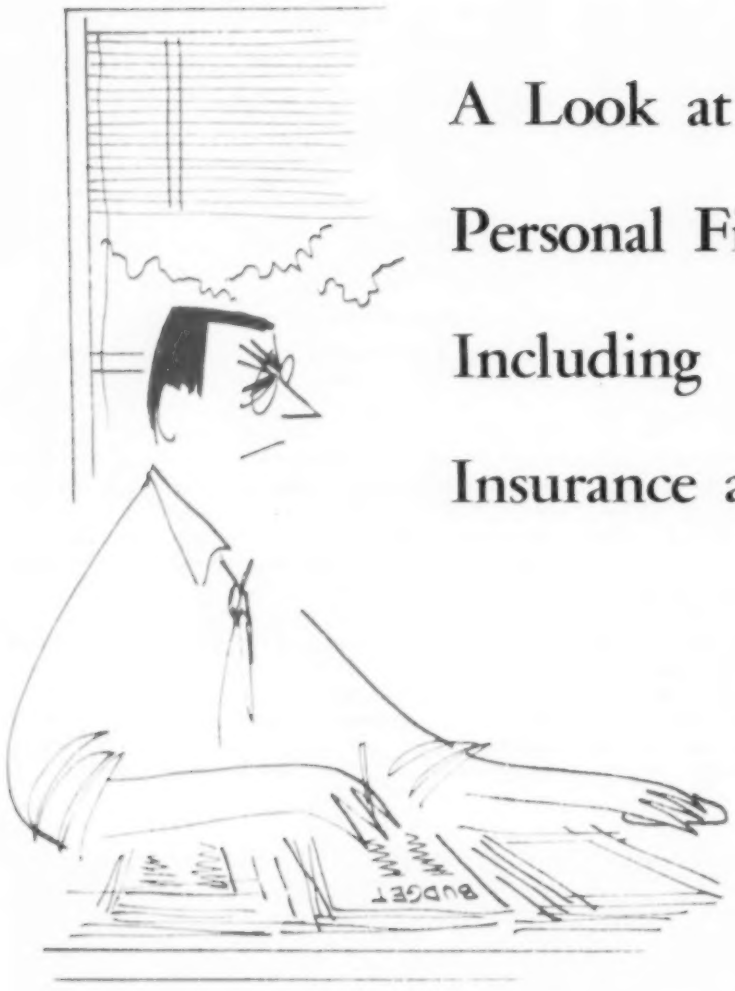
Another factor that helped us in making our decision on equipment was the maintenance aspect. Most service contracts seemed to be considerably higher than the one offered by the manufacturer we eventually chose. The actual rate is $25 per year per installation; in some instances this has proved to be far less than the charges of competing firms. But we have found thus far that maintenance has been simple, and in almost every instance our own staff has been able to handle any minor problems that have arisen.

As a teaching tool our new language laboratory has proved successful to a degree beyond our expectations. Southerners seem to have a hard time adjusting their voices to a foreign language. The Southern accent is soft and many words are slurred, but the laboratory enables us to present the language with the exact, correct accent and all its vital nuances. The student can then pit his own pronunciation against the "real thing" and adjust his speech accordingly.

Gives Excitement to Learning

We also have found that our new language laboratory, because of its many features, has given students an excitement about learning they didn't have before. It removes the tedium from study. Lesson preparation is no longer simply an exercise in memorizing long lists of words and dull rules of grammar. Through the laboratory the language comes alive. We use songs and actual foreign language broadcasts, which have the sharp impact of reality — and results are already apparent. The learning levels of our language students are far higher than those I have noted of students taught by conventional methods.

The language laboratory at Memphis State has opened a new dimension in learning, both for teachers and students. We have not begun to use it to its full effect or to derive all the advantages inherent in this new system of teaching, but this will come in time. Already the system has proved to be a giant step forward in education. ■



A Look at the Professor's Personal Finances, Including Insurance and Retirement

George F. Keane
Advisory Officer, Teachers Insurance and Annuity Association, and College Retirement Equities Fund

APPROXIMATELY 90 per cent of college teachers are now covered by retirement plans, 60 per cent by life insurance plans, 85 per cent by basic hospital surgical medical insurance, and 30 per cent by major medical expense insurance. The past decade has also brought social security coverage to 97 per cent of private colleges and universities and to 84 per cent of the publicly supported colleges and universities. For the large majority of college teachers, these staff benefit plans and social security form the basis for personal financial planning in providing protection against the economic hazards of death, disability and old age.

From a paper presented at the 15th National Conference on Higher Education, sponsored by the Association for Higher Education, Chicago, 1960.

Retirement. Social security and the college retirement plan constitute the principal sources of the professor's retirement income. The generally accepted goal is that these two sources should provide a pension of at least 50 per cent of the average of the final five or 10 years' salary. The outlook for meeting these goals is good. There has been a marked trend toward increasing retirement plan contributions and nearly two-thirds of the T.I.A.A.-C.R.E.F. participants are covered under plans with contributions in excess of 10 per cent of salary.

The great majority of teachers in private colleges participate in T.I.A.A. and in C.R.E.F., designed to provide a measure of purchasing power protection in their retirement years. Professors covered under state retirement systems are at some disadvantage because they usually forfeit earned benefits if they leave the system before retirement, and they also generally lack purchasing power protection after retirement. Important supplementary sources of retirement protection consist of savings investments and home ownership.

Pensions for professors already retired or retiring within the next few years may fall below the 50 per cent goal for several reasons, including the sharp inflation of recent years. To compensate for this, an increasing number of colleges are providing supplementary benefits. Additional an-

nuity purchases, perhaps through the salary reduction option of the "20 per cent rule" can benefit some. Deferred retirement or employment after retirement through the Retired Professors Registry can also help. The most important thing for the professor to do is to begin his personal retirement planning young enough to allow time to build a sound and adequate retirement program.

Life Insurance. The two questions college staff members ask most frequently when buying life insurance are: "How much insurance should I have?" and "What type of insurance should I buy?" The amount of insurance needed will vary widely, but generally is greatest when the breadwinner is young, diminishing as he grows older. For this reason, he generally needs maximum coverage at minimum cost and should buy mainly term or family income policies. By careful coordination of personal insurance with group insurance and the survivor benefits of social security, he probably will find that a reasonably adequate personal insurance program is well within his financial means. A large number of college teachers take advantage of T.I.A.A.'s free insurance advisory service. They purchased $40 million of new life insurance directly from T.I.A.A. in 1959, a sixfold increase over purchases in 1949.

Medical Expense Insurance. Great strides have been made in this field in the last 25 years. About 85 per cent of college teachers are covered by basic hospital and surgical insurance, mainly Blue Cross-Blue Shield. This provides varying but generally good coverage for illness or injury requiring hospitalization. It covers very few out-of-hospital expenses and is not intended to cover the unusually serious illness or injury, or those requiring prolonged treatment. This led to the important development of "major medical expense insurance" as a supplement to basic hospital-surgical coverage.

The essential features of major medical insurance are: a large amount of coverage, such as $15,000 per person; a broad coverage of expenses, including out-of-hospital expenses; co-insurance to control costs, and a deductible, similar to that found in automobile collision insurance, to eliminate many smaller claims. This is a relatively new field, but about 30 per cent of teachers are already covered and the coverage is expanding rapidly.

Disability Insurance. A period of prolonged total disability is probably the worst financial catastrophe that can befall a person. Not only does income cease, but also the disability quite often means heavy medical expenses. Most colleges have formal or informal provision for salary continuation during short-term disability, but no provision for long-term disability. T.I.A.A., working under a Ford Foundation grant, has developed group insurance for long-term total disability, and this coverage is gradually gaining acceptance.

Retirement plans generally provide a limited protection in event of disability, but this is generally not satisfactory unless disability occurs near retirement age. Social security entered the field in 1958 with income benefits for disabled persons over age 50. Individual disability income insurance is available, but should be purchased after careful study.

Value of Fringe Benefits. College payments for staff benefits today total from 15 to 20 per cent of payroll, exclusive of contributions by staff members. It is hardly accurate to refer to them as the "fringe" of compensation anymore. College teachers may be below salary levels of industry, but are generally ahead in the area of pensions and insurance. A true comparison of the professor's relative position should include the value of these benefits as well as salary. ■

What Constitutes a College Under the Law?

T. E. Blackwell
Educational Management Consultant, Washington University, St. Louis

PRINCETON TOWNSHIP assessed the residence of the director of the Institute for Advanced Study, the land on which it was erected, and the personal property located therein, at $105,900 for the year 1957, without granting the exemption claimed by the Institute under the New Jersey tax exemption statute,[1] which reads, in part, as follows:

"The following property shall be exempt from taxation under this chapter: All buildings actually used for colleges, schools, academies or seminaries; . . . all buildings actually and exclusively used in the work of associations and corporations organized exclusively for the moral and mental improvement of men, women and children, or for religious, charitable or hospital purposes, or for one or more of such purposes; . . . ."

The township asserted that the New Jersey legislature, in its use of the words "colleges, schools, academies or seminaries" in the tax exemption statute, had intended to limit property exemption to institutions offering "the more orthodox or traditional methods of instruction" and that the Institute for Advanced Study does not come within that category. It offers no formal instruction and it confers no degrees, for the obvious reason that its members or students are all at the postdoctoral level when they arrive, *i.e.* they all possess the highest earned degrees possible to ob-

[1] N.J.S.A. 54: 4-3.6.

tain. Since the Institute is located in the city of Princeton, N.J., it is sometimes referred to as the Princeton Institute for Advanced Study, but it is not a division of Princeton University.

The tax litigation reached the appellate division of the superior court of New Jersey in 1960.[2] The court reviewed the history of the Institute in its opinion. Its founder and first director was Dr. Abraham Flexner. His vision of "a paradise for scholars," where "scholars and scientists may regard the world and its phenomena as their laboratory," led to the establishment of the Institute through the gifts, in 1930, of Louis Bamberger and his sister, Mrs. Felix Fuld, and grants from the Rockefeller, Carnegie, Ford and National Science foundations.

Quality, Not Quantity

The Institute is a small center where "the quality of the work rather than the number of members or students is the distinguishing characteristic, a place where scholars and scientists can dedicate themselves to the conservation of knowledge and ideas, the interpretation of such knowledge and ideas, and the search for truth – in short, pure learning for its own sake."

Among the many renowned scholars who have worked at the Institute are Albert Einstein, T. S. Eliot, John von Neumann, Reinhold Niebuhr, Arnold Toynbee, George F. Kennan, and Robert Oppenheimer, "a constellation of brilliant men whose sole occupation is thinking and whose frontier is the growing tip of civilization. It is the epitome of the contemplative method and pure research."

Excerpts From Opinion

If we grant all this, the issue facing the court was simple: Is the Institute a "college or school" as contemplated by the New Jersey legislature when it formulated its tax exemption statute? What is a college? The following are excerpts from the opinion of the court:

"We are persuaded that 'college,' as used in the statute, is not to be confined to the kind of institution that has become so familiar to us, where there are teachers and pupils, courses of instruction, a conferring of degrees, and an extended discipline. The concept of a college is an organic one, taking a varying aspect in different times and places. . . . In its earliest and most fundamental sense, it meant a collection of persons united by the same office, interest or occupation, the Roman *collegium*.

"While the Institute is unique, occupying, as it does, an unexampled position on the farthest frontier of American education, it surely possesses every attribute of an institution of learning. . . . It is reasonable, if not indeed compelling, that this court give effect to the obvious purpose of the legislature. To that end, the word 'college' may be given an expanded interpretation comporting with the manifest reason and obvious purpose of the law. The spirit of the legislative direction must prevail over any literal or conventional sense of the term.

"We conclude that, to deny exemption in this case to an institution which stands at the very apex of American higher education, one which has attracted to Princeton some of the finest minds in our generation, would be a perversion of the legislative intention. . . . The Township does not contend that Olden Manor (the official residence of the director of the Institute for Advanced Study) is not actively used in the work of the Institute and therefore not entitled to tax exemption – once it is decided that the Institute falls within the category of 'college, school, academies or seminaries.' We have so concluded."

The New Jersey court, in holding that the official residence of the administrative head of an institution of learning is exempt from taxation, was following its own precedents[3] and those of other jurisdictions. By long established tradition, a college president is granted the use of one of the college buildings as a residence. This is well recognized as one of the perquisites of his office. The courts have recognized this, and granted exemption.

One of First Cases

One of the first cases in this country involved the president's house at Lafayette College in 1889. Although temporarily rented to one not associated with the college, it was held to be tax exempt.[4] The president's residence at Amherst,[5] Harvard,[6] Kenyon,[7] Syracuse[8] and Kansas Wesleyan[9] also have been declared to be exempt property by the courts, despite the efforts of local tax authorities to assess them. Although the president's house at Syracuse University was located at some distance from the campus, and, in the opinion of the assessor, was more elaborate than necessary for a university president, the court disregarded the questions thus raised.

If any college or university in this country has failed to obtain tax exemption for the official residence of its president or chancellor, owned by the institution and used for its purposes, I should like to have the citation to the litigation, or a copy of the decision and opinion of the court, if the case was not tried in a court of record. ■

[2]Princeton Tp. *v.* Institute for Advanced Study, N. J., 157 A. 2d 156 (1960).

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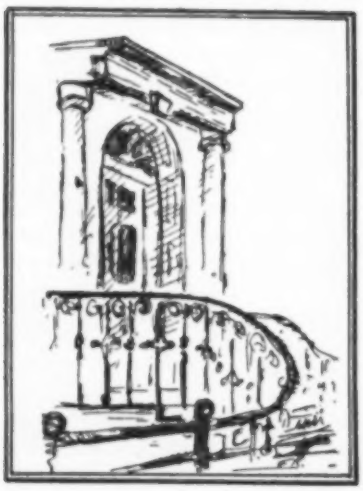


[3]State *v.* Ross, 4 N.J. 497, 24 N.J.L. 497 (1854).

[4]Northhampton County *v.* Lafayette College, 128 Pa. 132, 18 Atl. 516 (1889).

[5]Amherst College *v.* Assessors, 173 Mass. 232, 53 N.E. 815 (1899); Amherst College *v.* Assessors, 193 Mass. 168, 79 N.E. (1906).

[6]President and Fellows of Harvard College *v.* Assessors of Cambridge, 175 Mass. 145, 55 N.E. 844 (1900).

[7]Kenyon College *v.* Schnebly, 12 Ohio C.C.R. (n.s.) 1, 21 Ohio C.C. Dec. 150 (1909); aff'd without opinion, 81 Ohio St. 515 (1909).

[8]*In re* Syracuse University, 124 Misc. 788, 209 N. Y. Supp. 329 (Sup. Ct. 1925).

[9]Kansas Wesleyan University *v.* Saline County Commissioners, 120 Kan. 496, 243 Pac. 1055 (1926).

And then the roof caved in

How Safe Are the Students?

Francis J. Quinlan
Supervisor of Fire Protection, Cornell University
Daniel P. Webster
Staff Representative for Higher Education, National Safety Council

STATISTICS cannot convey the horrors of any catastrophe. Several years ago 46 students died in a single residence hall fire. The 1800 colleges and universities have an average of 100 residence hall fires during the school year. The probabilities, therefore, are one in 18 that a residence building on your campus will be visited by fire this year."[1]

Most colleges and universities are communities in themselves for, in addition to providing lecture and classroom facilities, they serve to house and feed students. This fact results in their often becoming sites of greater fire hazards than are found in typical schools at the lower levels of education. The opening paragraph, quoting the National Education Association, points up the extent of this fire danger in colleges.

In the last three years alone a series of college residence fires have produced student fatalities. These have occurred in New York, Idaho, Mississippi and the District of Columbia. The causes of the fires have varied from improper storage and waste removal to failure to supervise student activities, particularly in the use of flammable decorations.

Fraternity and sorority houses have been particularly vulnerable to disastrous fires. One campus safety authority has stated: "When fire strikes the average chapter house the occupants are in real danger, because most chapter houses are 'built to burn.'"[2]

Nor should college administrators overlook laboratory and classroom buildings, for the contents of these frequently make them tinder boxes even though construction may be of

[1]Fire Safety in College Residence Buildings, National Education Association, 1952.

[2]Morris, John: Fire in the Chapter House, Coll. & Univ. Bus. 26:35 (April) 1959.

masonry or other fire-resistive materials. In addition to the possible fire areas mentioned, we might include power plants, agriculture buildings, storage warehouses, and, in fact, virtually every type of construction to be found in any community. Fires do occur in all these locations, taking their toll in lives and in injuries.

Among the questions that college business administrators might ask themselves are: Do the facilities housing students on campus have adequate fire alarm systems to notify the occupants that a fire is in progress and to summon emergency assistance? Does the college go along for months or years without conducting fire drills under varying conditions and at various hours of the day? Are "temporary" frame barracks still being used as residence halls years following their original construction? Do fraternity and sorority houses of frame construction have adequate fire escapes or alternate means of egress? Are extinguishers easily accessible in laboratories, classrooms, warehouses and other buildings? Do all buildings meet the local fire department's requirements?

These questions have also been of concern to the Campus Safety Association, a voluntary organization of college specialists in safety education and accident prevention. Early in 1957, the association, a part of the National Safety Council's higher education section, appointed a committee on fire drill standards to explore this problem and to assist in developing recommended standards that institutions of higher education might follow.

The committee works closely with the National Fire Protection Association, the National Board of Fire Underwriters, and the International Association of Fire Chiefs. It urges colleges to apply the recommended standards and codes of these groups as well as those required by law. Following consultation with staff members of the N.F.P.A. and its general manager, Percy Bugbee, the association decided that it first should ascertain current fire drill and alarm practices in colleges and universities.

The committee recognizes that fire drills are but one segment of a complete college fire safety program.

Recommendations on the Conduct of Fire Drills

1. Conduct fire drills in your college or university on much the same basis as fire drills held in elementary and secondary schools. Certain adaptations and additions can be made.
2. If official resistance to a comprehensive program is too great, develop a progressive plan. Include at the start all housing facilities. Also include other buildings with the greatest potentials for serious fires: those housing shops and laboratories, those in which volatile or flammable materials are used or stored, those of nonfire-resistive construction. Follow with others that have poor fire protection (no automatic sprinklers and alarms) until all facilities are included.
3. Arrange for the conduct of fire drills at least once a month. During the regular nine-month school year, hold at least four or five of these drills prior to January 1. During intersessions and summer sessions conduct drills oftener, the relative number being increased in ratio to the shorter terms.
4. With the help of the local fire department and insurance specialists, in addition to qualified personnel on your staff, critically examine each room of each building to determine normal and alternate escape routes. Simultaneously determine the method of alarm to be given in each location, an alarm distinctive from that used for any other purpose. Develop a standardized type of alarm for the various buildings on campus.
5. Prepare standard instructions for the conduct of students, staff and visitors when a fire alarm is sounded. Supplement these instructions with specific instructions for particular locations, and for students or college personnel who will have duties to perform when an alarm is sounded. Standardize also on the type of signal: the intermittent type for evacuation and a long continuous signal for return to the structure.
6. Develop instructions for all students, staff and visitors. These should include:
   - Definition of the alarm signal, both for evacuation and return.
   - Utilities and equipment that should be turned off or left on, including lights.
   - Closure but not the locking of windows, transoms and doors, and by whom.
   - Maintenance of silence unless essential to the movement of personnel.
   - Instructions to walk and never run, and keep to right in halls and on stairs.
   - Normal route to take, and alternate egress in case exit is blocked.
   - Distance to move from building (at least 100 feet) and place to assemble.
   - Responsibility of instructor to check his classroom to see that it is completely evacuated, without exception.
   - Instructions for sounding an alarm or reporting a fire or an emergency. There is no such thing as a "small fire."

While practiced fire drills in themselves will not *prevent* fires, when coupled with effective fire alarm systems, they can be instrumental in the *saving of lives* through the orderly removal of occupants from buildings. Even though states generally demand that fire drills be conducted regularly in elementary and secondary schools, and the N.F.P.A. and other organizations recommend such drills in colleges, the committee believes that information should be provided as to the types of buildings in which drills should be conducted, frequency of drills, hours of day, and methods of organizing drills under varying circumstances.

When a fire occurs one of the first utilities to be lost is electricity. In a student residence the loss of electric lighting in the presence of smoke and tear-producing gases virtually eliminates the ability to see. No wonder that John J. Ahern, director of the department of fire protection and safety engineering, Illinois Institute of Technology, said:

"Fire drills are an integral part of a life safety program. They are particularly important in residence halls as the element of panic is greater when people are suddenly awakened and confronted with an unexpected situation. A few drills will overcome this tendency and make the speedy evacuation of the building a routine matter under any circumstances."

In the recent dormitory fire at a southern university, approximately 1100 undergraduate students safely evacuated the building. One might conjecture the loss had it not been for the good fortune that the lights kept burning. Other incidents have told a far grimmer tale.

What were some of the findings of the committee's study as they relate to fire drill practices? On Oct. 1, 1958, a survey form was sent to the 1933 colleges and universities in the nation listed in the *Education Directory, Higher Education*, of the U.S. Department of Health, Education and Welfare. When the name of the safety director was known, it was mailed to him; in other cases it went to the provost or president. Almost 20 per cent of the forms distributed were returned. (*Con. on p.* 48)

As Made by Committee on Fire Drill Standards of Campus Safety Association

- Assistance to incapacitated occupants.
- Orders not to reenter building under any circumstances until the all-clear signal is given.

7. Develop additional procedures for evacuating residences and issue the pertinent instructions:
   - Organization of designated students to serve as room monitors to make sure that all occupants have been alerted and have left the building. Do not overlook bathrooms, storage and laundry areas.
   - Immediate reporting to a designated location for attendance check.
   - Occupants to follow general evacuation procedures, but in event of alarm at night or when a student is taking a shower, he is to wear only shoes, coat or wrap, and towel — no delay to get dressed or to get personal possessions.
   - Self-preservation procedures if the door is hot, or the exit is inaccessible.
   - Circumstances when first-aid fire fighting equipment may be used after the fire department has been called and the students have been evacuated.
8. Post instructions as to emergency procedures to be followed at the inside jamb of all rooms, preferably near the light switch. Post conspicuously in all hallways of all buildings supplementary instructions; also post the same instructions in large meeting rooms, auditoriums and gymnasiums. Don't assume that these instructions will be read. Have them read by the instructor of the class or the person responsible for the area the first time the room is used by students, and as frequently thereafter as necessary to assure that the instructions are understood and known.
9. Determine the functions that the service personnel should perform at time of drills and emergencies, including shutdown of power and steam, first aid, fire fighting, traffic control, and other duties. Order all personnel not performing protective functions to evacuate the building.
10. Arrange for the conduct of progressive fire drills. First drills should be announced, allowing an opportunity for procedures to be discussed prior to the drill. Subsequent drills should progress from surprise drills during daylight hours and surprise drills with simulated blocked exits to surprise drills with and without simulated blocked exits at night. In residences the effectiveness of a nighttime drill can be obtained by its being called just after the students retire or just prior to the normal hour of arising.
11. Use a fire drill report form to review the type and circumstances of alarm and the effectiveness of evacuation.
12. Make it clear to all college personnel and students that false alarms will not be tolerated, and that penalties for sounding false alarms, which jeopardize the safety of students and firemen, will lead to severe punitive action.

For purposes of the tabulation, the 341 returns were separated according to: (1) level of education (junior college, college or university); (2) type of operation (public or private), and (3) composition of student body (male, female or coeducational).

It was found that 35 per cent, or 121, of the 341 colleges and universities responding conducted no fire drills in any facility at any time of the year. Happily, 84 per cent of the 85 public and private junior colleges responding did conduct fire drills during the year, even though many of them are located in cities and do not have housing facilities. It may be that junior colleges accept fire drills as a normal extension of secondary school practices.

Little Difference in Colleges

Little difference was found between private and public colleges. Of the 144 public institutions responding 43, or 30 per cent, did not conduct drills; of the 185 private colleges responding 68, or 31 per cent, had no drills. These and subsequent figures do not include the 12 colleges that did not identify themselves by name or type.

Within the 65 per cent of the colleges and universities that did conduct fire drills there were wide variations as to facilities in which the drills were conducted. For example, in a large number of colleges fire drills were held only in women's residence halls, and not in men's facilities. Several respondents expressed doubt that fire drills were conducted in fraternity or sorority houses.

In obtaining information as to frequency of fire drills, information was sought for the full year basis, but data were grouped as to one to three, four to six, or seven or more drills a year.

Of the 249 colleges that had residence halls, 40 per cent reported no fire drills during the year. Of the remainder, from one to three drills during the year was the most frequent practice.

Fire drills were seldom conducted in fraternity houses, with 80 per cent of respondents indicating that no drills were conducted. Of those that conducted drills the majority held only one, two or three a year.

Practices of sorority houses were only relatively better, with 66 per cent conducting no drill. Among those that did conduct drills the greatest number had from four to six or seven or more drills a year.

Less than 42 per cent of the colleges reporting conducted fire drills in classroom buildings. Of the colleges that did conduct drills the frequency was either low (one, two or three a year) or high (seven or more a year).

An even smaller number of the total, 40 per cent, conducted fire drills in laboratory and shop areas. Those that did, usually conducted three or fewer drills a year.

Less than 40 per cent of the colleges conducted fire drills in student centers.

Scarcely a fourth of the colleges with infirmaries or hospitals conducted drills in these facilities.

Junior Colleges. Twenty of the 36 junior colleges with residence halls, or 55 per cent, held regular fire drills, usually four to six times a year, but drills were more likely to be held in private than in public junior colleges, with the greatest number requiring from four to six drills a year.

The majority of the junior colleges that conducted drills required them in classrooms, laboratories and shops, 74 per cent and 72 per cent, respectively, but in these locations public junior colleges were more likely to require drills, usually seven or more a year.

Colleges. Approximately 60 per cent of both private and public colleges required fire drills in residence halls; the frequency of drills was much the same, with the greatest number of colleges holding from one to three drills a year. However, a slightly smaller number of colleges conducted seven or more drills.

Private colleges had more frequent drills in classrooms, laboratories and shops, but for all colleges the usual number was from one to three. No pattern could be established for fraternities as so few apparently conducted fire drills either in private or public colleges.

Universities. Public universities were more likely to require frequent drills in residence halls than did private universities, but the usual number for all universities was from one to three a year. No private university reported fire drills in classrooms, laboratories or shops, whereas a few public institutions required them, usually three or fewer a year.

Variations by Composition of Student Body. None of the public or private men's universities required fire drills, whereas drills were required in the residence halls of some women's universities. By contrast the majority of coeducational universities conducted fire drills in residence halls, usually one, two or three a year. Fire drills were held in approximately half the sorority houses in all coeducational universities, while only slightly more than a fourth of the fraternities in public coeducational universities held fire drills, usually from one to three a year. Fraternities in private coeducational universities almost never held fire drills.

Conclusions. No group of colleges could be found that meets even minimal standards for the conduct of fire drills based on practices at lower levels of education and on the experience and recommendations of authorities in the field.

Generally there was little difference in fire drill practices in public and private institutions.

Fire drill practices for the protection of life became weaker with the increase in educational level.

Greater stress on the practice of emergency evacuation is given to women than to men, not only in women's colleges, but in coeducational institutions as well.

Some individual institutions have developed good fire drill programs, as supported by exhibit material submitted to the committee. Unfortunately many of these colleges did not initiate such programs until a disaster had occurred.

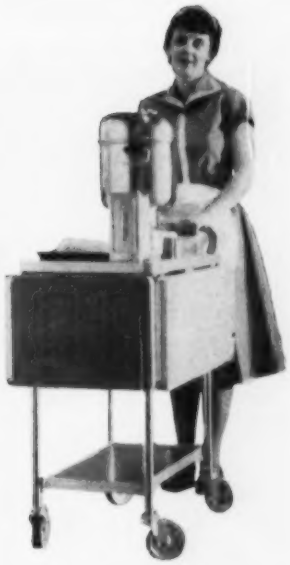
Recommendations for Administrative Action. An emergency evacuation program, to be effective either in practice or in the event of an actual emergency, is dependent upon a number of related factors. These include construction and fire protection features, careful planning and instruction, adequate and distinctive fire alarm systems, and the creation of an attitude in all students and staff members that fire drills are a most serious business intended for the *protection of life*.

In order to evacuate a building, one must first know that there is a fire or other emergency; hence the importance of fire detection and alarm systems. ■

Money Saving Wheels, Deals and Spiels

in college union food service and maintenance

Loren V. Kottner
Director, Kansas State Union, Kansas State University, Manhattan



MOST college union directors spend an average of 50 per cent of their time with problems of the business portion of the operation. Their most persistent problem is how to reduce labor costs and other expenses, which seem inevitably to be on the increase.

Drawing upon the excellent experience of some of my union colleagues, I shall present some ideas that have proved helpful. These I shall divide into three categories, namely, "wheels, deals and spiels."

"Wheels"

The evidence is overwhelming that to make all kinds of equipment portable saves both money and labor. In a modern kitchen, hot food carts, steam tables, refreshment carts, and even refrigerators are now mobilized so that they can be transported from one area to another. Not only does this cut down on the amount of equipment required in most cases, but it also saves extra handling and therefore labor in the movement of food products and supplies from storage kitchen areas to the serving units.

In our union, for example, we have devised a portable cafeteria line. Each piece of equipment that makes up the line from the hot food unit to the beverage unit is completely movable. This makes it possible for us to set up a cafeteria line in any area of the building where this service is needed.

In my estimation it would be a very costly operation and a big mistake to consider the purchase of any piece of food service equipment without first considering its mobility and the possibility of its being used in several locations.

In many operations, the bakery unit makes pies, cakes and other pastries when work slows down. These are loaded on carts and wheeled into a large freezer where they are kept until peak periods. This avoids the necessity of baking 100 pies on the day of a big event.

Many snack bars have customers load their dishes on portable carts, which are wheeled away and replaced with empty carts. Janitor supplies and cleaning equipment can be mounted on a cart and be moved from place to place, minimizing the amount of equipment necessary and reducing the amount of storage space needed. Portable partitions and office equipment have become standard for many unions.

Still another application deals with food services outside the building. Portable equipment, used by groups going on picnics or outings, is lent by the food service department. A deposit is left with the department and, upon the return of the equipment, the money is refunded. Many times "wheels" have reduced costs.

"Deals"

Many unions believe there are services that they must provide or should provide that extend beyond their own capacity to pay for or to provide. In these instances, I suggest that arrangements to contract for these services be considered. The most outstanding example of this is the vending machine.

With increasing labor costs facing us all the time, many unions have found that a bank of nicely appointed vending machines, with adjacent space for commuter lunches and for snacking, is a highly desirable addition to the union building, and for other areas on the campus as well. In many cases this operation involves no investment on the part of the union. Many vending machine firms provide the machines, materials and labor at no cost to the union, returning to the union a percentage of the gross income.

In addition, services to the rest of the campus in terms of concessions or snack service have proved highly profitable. The University of Kansas Union, for instance, has a concession department that serves the entire campus, including the athletic department. The union isn't always readily accessible to students during a 10 minute break. Vending machines, small snack bar units, or snack services for residence halls, can bring income to the union while providing a service to the campus.

Vending machines, of course, can be purchased and serviced by the union. This means that the number of machines and the volume of business must be enough to justify the labor of servicing them. The profit that the vending company makes would then stay with the union.

Other "deals" that union management should be quick to consider are

From a paper presented at the Association of College Unions, Bloomington, Ind., 1960.

Baked goods prepared before a peak period are loaded on a cart, and it slides into a freezer until it is needed.

internal matters within the building itself. Four such "deals" that could reduce labor costs and save money are given here.

The first is the combination of certain jobs to reduce the total labor force. It is easy enough to add employes until the labor-straw breaks the camel's back. But a careful review of jobs may result in the possibility of combining two jobs that are actually little more than half-time positions into one full-time position and actually saving the cost of one person.

Also, many unions are reluctant to use a food service person who works in the snack bar in any other area of the building, or, for that matter, in any other area of the food department. It is important to encourage the interchange of workers between departments, particularly junior staff members who are interested in union work as a profession.

Certainly the most depressing problems facing a union director are those that result from friction between departments in the union. Involving program people in food service and food service people in programing can reap great benefits for the total operation in terms of understanding, as well as in reduction of labor costs.

A second "deal" that smart union directors might make is a spot-check of the operation by cost accounting methods. Attention is focused on one function, such as check cashing, to discover exactly how much it costs in labor to perform this single function. This method has produced some interesting and sometimes shocking information. Adjustments made as a result of such a study can save hundreds of dollars.

It is easy to assume that the services we provide are not really costly to us. For instance, one union official believed that providing de luxe service for meeting rooms was a fairly inexpensive service. His union made setups and provided water and miscellaneous equipment such as movie projectors and P.A. equipment at no charge. When a careful check of the cost in setting up an average meeting was made, it was discovered that the cost was twice as much as had been thought.

A third "deal" is to enlist the assistance of others. At Kansas State, we have a "time and motion expert" who uses the union as a laboratory for his students. At first we were inclined to reject the idea of having an "efficiency expert" on our hands. However, as a result of one class project the seating capacity of our overcrowded snack bar was increased by some 30 seats and, in addition, the traffic flow was smoothed out. This kind of help is invaluable. We are wrong if we do not take advantage of authorities on our own campus.

The fourth area is the wise use of student labor. If you make a study to determine how much student labor really costs, you may be surprised. Obviously, the unit cost for student labor may seem inexpensive but the process of training, hiring and replacing is often an offsetting factor. This may be true of other types of labor also.

"Spiels" (Communication)

Today, with dictating machines, telephones and intercoms, we often fail to utilize the obvious methods for solving problems. A prime requisite of a good manager is that he be able to communicate meaningfully and effectively with his staff. He must also be able to get members of the staff to communicate in like manner with staff members in other departments.

As our college unions continue to expand, the problem of keeping everyone informed and up to date becomes increasingly difficult and increasingly important. It is most unfortunate when departments within a single union find themselves at constant odds with one another. Much of this conflict can and should be solved through constant communication between the departments. There must be a feeling of unity among the union's key staff members. They must feel the importance of the entire operation and continue to explore the relationship of their department to the rest of the operation.

On this basis each department head needs to know what other departments are doing. Why should the program department, for instance, be unconcerned about the ever increasing labor costs in the maintenance of the food service departments? Correspondingly, events sponsored by the program department should be of interest and concern to the other departments too. Through a blending of ideas and a sharing of both successes and failures, the top management of the union is able to do a better job all the way around. The means for accomplishing this is good communications.

Several simple but effective means of increasing communication within a union building operation exist. The first is the extensive use of notes or interoffice memorandums. I recom-

mend this over a telephone call in many cases. The jotting down of the information to be transmitted takes no longer than a phone call and provides a record for the recipient. The note has a greater staying power than does a telephone conversation. A second effective method is the daily use of a "To Do" list. If the list is kept consistently, only a brief reference to it is necessary before agenda for a discussion are prepared or the day's work is planned.

A third suggestion is to hold informal staff meetings more frequently. Weekly staff meetings to discuss major matters are fine, but daily contacts among the key supervisory staff members can solve many problems before they occur. At Kansas State, our staff meets every morning for coffee. In this way we make use of the coffee-break time and are in a position to discuss informally matters of immediate concern to the total operation or any problems that have arisen for an individual department. At these meetings we review the schedule of events for the day, read the night manager's report, and discuss matters of concern to all. This feeling of working closely together has been most helpful.

Still another suggestion that is far from new is: "Write it down." There is no bit of information, suggestion or idea that doesn't merit being jotted down for future reference. By so doing, we provide a written record and a reminder for the future.

Also included in this rather general category of communication is the importance of delegating responsibility to junior executives or supervisors. We talk many hours about the importance of training people for the union field, and yet we ourselves are greatly at fault for not providing the opportunities.

Too many of us hold too much responsibility within the confines of our own office. We are not willing to let a staff member handle a project completely. If we do, we reserve the right to review and make suggestions to the point that the staff member no longer feels it is his project. We talk about giving students an opportunity in the program department. I think we must also give staff members an opportunity. Furthermore, it is important to include each department head and key members of the departments in such important matters as budget preparation, training of new staff members, and major projects. There is no better way to achieve loyalty and devotion.

A bank of vending machines can result in additional income for the union and increased service to students.

One of the most effective means of accomplishing work that I know is setting a "deadline." This applies both to individual work and to staff work. Deadlines serve notice on yourself and others that a job or project must progress and must be finished by a stated time. This is particularly true when others are depending upon your decisions and recommendations so that their work may proceed.

Of late, brainstorming has become a much overused technic and phrase. However, I should like to mention it briefly as a means of effective communication. Words mean different things to different people. Brainstorming makes it possible to begin to understand what other people really mean by what they say. Things that we say once need to be reinforced many times by our saying them in different ways. Brainstorming provides the opportunity for the mind to work and the mouth to communicate the workings of the mind. This is not true of many other technics of communication. Effective communication is a means of achieving success in any business management and particularly in union operation.

I should like to paraphrase a remark made by Parmer Ewing, who is the head of the department of administration of New York University. Dr. Ewing said that 90 per cent of what an administrator does every day could be handled just as effectively by the janitor.

Most of us, Dr. Ewing declared, spend much of our time answering the phone, signing our names, greeting people, and attending meetings. Any janitor could do these jobs with little or no effort.

Dr. Ewing goes on to say, however, that the real difference between the janitor and the administrator is the administrator's ability to solve problems effectively. He states that, unless we are able to do this, we have little right to the salary or the title we jealously guard.

His six points in the problem solving procedure are applicable to unions as well as to many other businesses or operations: (1) Get all the facts; (2) determine all the alternatives; (3) try two or three alternatives mentally; (4) decide on the best one (this is the critical difference between the janitor and the good administrator — the ability to decide on the best alternative); (5) time the presentation of the idea so that it will have a good chance of success; (6) evaluate the results. ■

Little Rock University Science Building, set in wooded area, takes advantage of gently sloping site.

For Science Facilities Planning Becomes Crucial

Francis G. Cornell and Edwin B. Cromwell
Engelhardt, Engelhardt, Leggett and Cornell
Educational Consultants, New York

THE post-sputnik swell of interest in science and technology has placed new science facilities high on the priority list of capital requirements of colleges. Spaces for teaching and research in colleges are costly and relatively inflexible. What is more, they are of little value for use by assorted nonscience college departments. This means that it pays to have the right kind and right amount of space in the new structure.

Experience indicates several pitfalls to be avoided in projecting space requirements and planning a new science structure.

The first, of course, is the macroscopic problem of anticipating the fortunes of the institution itself. Statistical methods and available information will usually allow a projection of enrollments about 10 years in advance. A building today, however, will usually stand 50 years or more; it would be well if it were to be planned for phasing into a period longer than 10 years.

Assuming that we are considering a junior or community college, of pertinence here are such questions as the following:

Will we continue to draw student population from the same sociological component of the community?

Will the source of student supply change in relation to the geographic relation of the college so as to affect its future enrollment?

Will there be competition with other institutions for students?

Will financial resources be such that tuition costs will price us out of students?

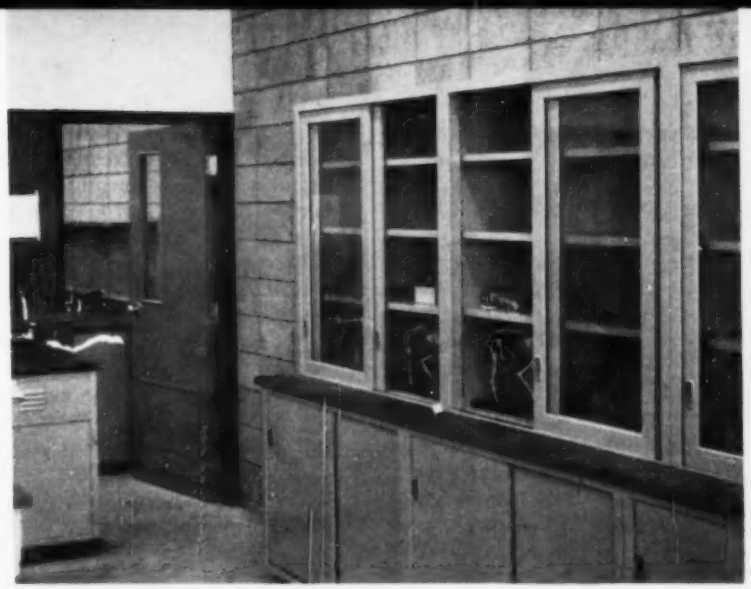
Will the economy of the service area support that projected supply of potential students?

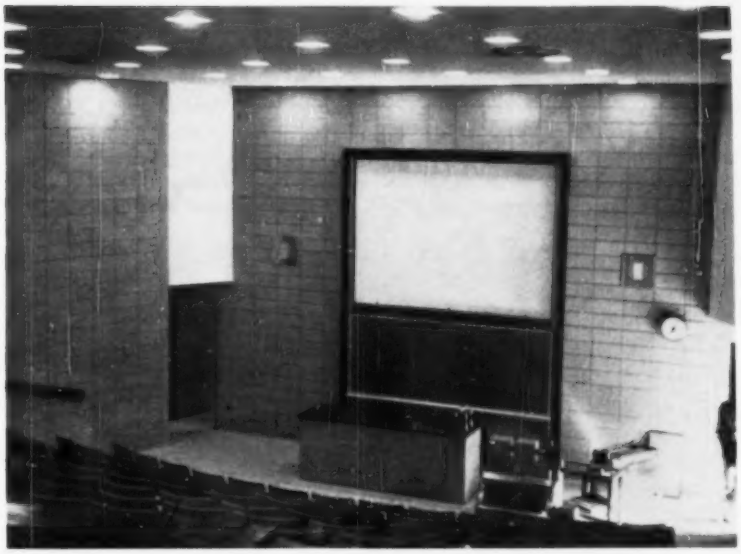
Will the institution grow so large and the demand be so great that we must extend the program to four years with graduate and professional degree programs?

Questions are legion when we begin to think about a new science structure.

Whereas the foregoing questions relate to the future size of the institution and its academic role, we must

Here is a review of the educational and pre-architectural reasoning behind a new science hall





STORAGE ROOMS (top) are placed in the central core of the two main buildings, so that they are easily reached from every single classroom. **LECTURE HALL** (left) was built to take advantage of the natural slope of the land. It accommodates 200. **LABORATORY** (below) has concrete walls, as do all interior areas of the building; there are ample chalkboards and demonstration spaces.

also ask ourselves questions related to future enrollments in the science department itself.

Will there be an increase in the proportion of instruction in the sciences, measured as weekly student hours of lecture and laboratory? Is the rank order in volume of instruction to vary from the past: biology, chemistry, physics, respectively? Are there to be new sciences or new combinations, and how will they share in the enrollment pattern? Will there be a differentiation in the science curriculums for science majors, students preparing for technical professions requiring science, and nonscience, nontechnical majors? In each of the sciences, what will be the relative load

of lower division (introductory) and upper division (advanced) instruction?

Not to be overlooked is a considerable area of analysis dealing with anticipated instruction methods. This seems critical, partly because it is so difficult to project into the future the directions creative imagination might take in reshaping instruction to keep it in tune with the vastly expanding substantive content in the sciences, with new technology, such as television, and with new ideas about teaching.

Some competent authorities in science education, for example, anticipate little or no laboratory work, as we now know it, for the great majority of college students, those not majoring in scientific or technical fields. There is an overwhelming tendency to plan facilities in terms of the curriculum and teaching as it goes on now, not 20 or 30 years hence.

The answer well might be: no evidence of change. Nevertheless, it is logical in working up a schedule of spaces to consider problems of size of classes and groups for lecture and laboratory, scheduling of classes, possible utilization of classrooms and laboratories in weekly hours, distribution of student time among lecture, laboratory and individual study or research.

One of the most difficult problems to consider in planning the science facility will be anticipating space requirements for research. If the institution is to grow beyond the level of undergraduate instruction, this problem is significant because it is generally conceded that good graduate instruction must be research-oriented. Faculties engaged in research-oriented graduate instruction are usually encouraged to participate in faculty research.

These and many issues like them can make a great difference in the usefulness of a new science structure. Unfortunately, decisions about such matters are often poorly made or not made at all. The result is a handicapping of the science program and an avoidable capital expense later.

Application in Little Rock

In the 1959-60 school year Little Rock University began using a science building that had been planned and constructed with the foregoing educational (and pre-architectural) considerations in mind, as previously mentioned. With a budget limitation of approximately $400,000 for construction, efficiency in planning spaces was essential. Projection of anticipated enrollments in various sciences and decisions regarding class sizes and space utilization resulted in relatively fine specifications of spaces for needed classrooms and laboratories. In anticipation of uncertain but likely changes in the instructional program, spaces were planned for convertibility. Laboratories for similar sciences were grouped together with common service spaces. In anticipation of more large group sessions, a large lecture room was designed as one of the four major components.

Has Five Kinds of Space

In general, it was determined that five kinds of space should be provided: (1) interchangeable classrooms without special laboratory equipment, (2) science lecture rooms with facilities for demonstration, (3) specific-purpose classroom and laboratory, (4) multipurpose classrooms and laboratories in which facilities can be shared, (5) special laboratories for special subjects.

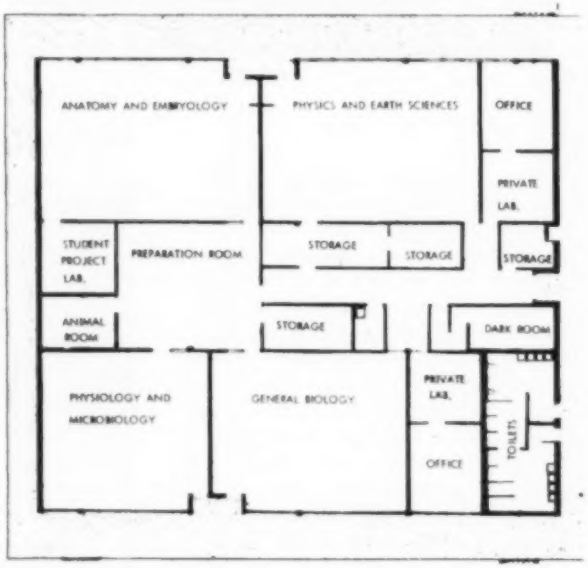
In addition, all science courses require a certain amount of space for storage of supplies and teaching aids. For convenience, this space usually is directly adjacent to each classroom.

Is One-Story Building

The Little Rock Science Building provides all of these spaces, with some unique features that maximize the return per dollar in usable space without sacrificing esthetic quality. The one-story building consists of two large and two small units built around a center courtyard.

The units are set on a rolling, wooded site and are designed to preserve the natural beauty. The two main units are on an upper and a lower level; a ramp cuts through the center court to facilitate movement of equipment and supplies from one

CONVERTIBILITY is the keynote in the planning of space in this Science Building, in anticipation of likely changes in the instructional program. One of the four major components is a lecture hall, looking toward more large group sessions. Labs for similar sciences are grouped, with common service spaces.



building to another. Each of the two major units has four large classroom-laboratories, with a total of 4160 square feet in one unit and 4930 square feet in the other. A central service core of about 2140 square feet, containing storage space, preparation rooms, and special work areas serves the classrooms in each unit. This arrangement makes these shared facilities readily available to every classroom in the unit.

A small unit consisting of two general classrooms and a mechanical room is on the third side of the court, and the large lecture hall is on the fourth side. The sloping floor of the lecture hall takes advantage of the natural slope of the land. A demonstration area and small preparation room are part of this unit. The receiving room for all of the sciences is at one end of the lecture component.

The careful planning of space and facilities provides all five essential kinds of space, plus their necessary service facilities:

1. *Interchangeable classrooms.* The two-unit classroom space on one side of the court provides space of this nature.

2. *Science lecture rooms.* The large lecture room on one side of the court answers this need.

3. *Specific-purpose classroom and laboratory.* Classrooms for analytical chemistry and organic chemistry are special-purpose rooms.

4. *Multipurpose classrooms and laboratories.* Physics and earth science laboratories and the engineering and electronics laboratories are examples of shared space.

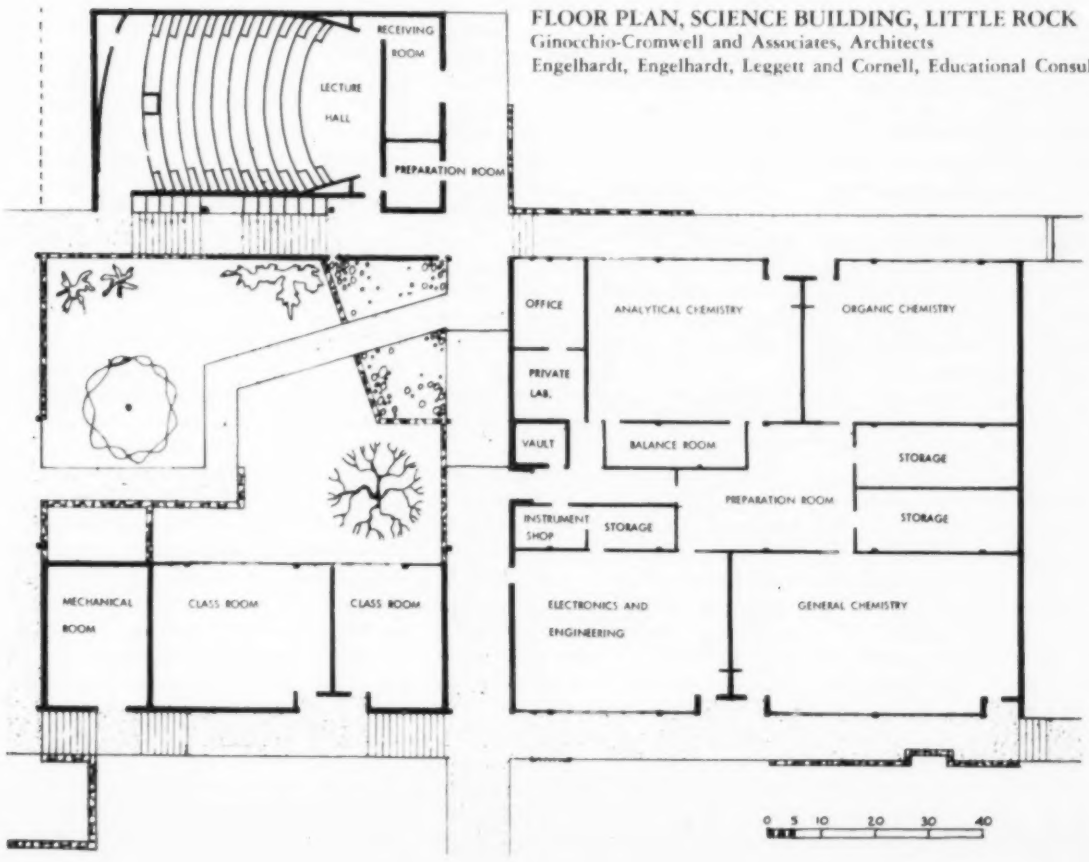
5. *Special laboratories for special subjects.* The darkroom and the animal room are spaces of a highly specialized sort.

Structure and Cost

Structurally the Little Rock building is sound and attractive, but not expensive. Foundations are reinforced concrete. Walls are of structural steel frame with exterior face brick and lightweight interior blocks. Partitions are of concrete block exposed in most places but with plastered walls where necessary. Floors are reinforced concrete with treatment where tile covering is not required. Ceilings are of exposed glass fiber. The roof is of structural steel with a gypsum deck. Windows are of aluminum.

The heating and air conditioning system consists of forced hot water with unit ventilators and a 22 ton absorption chiller for partial air conditioning.

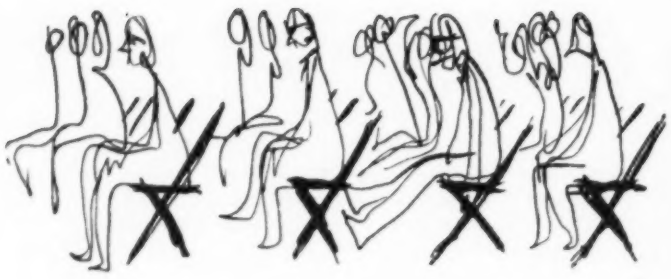
The total cost of the structure, not including fees, was $415,069.90, including equipment. The total enclosed space is 29,062 square feet. In lieu of corridors, the covered walks amount to 7084 square feet. Computing covered walks at one-half, the total equivalent space in the structure is 23,604 square feet. The construction cost was $13.61 per square foot; equipment came to $3.98 per square foot, making the total cost, equipped, $17.59 per square foot. ■



FLOOR PLAN, SCIENCE BUILDING, LITTLE ROCK
Ginocchio-Cromwell and Associates, Architects
Engelhardt, Engelhardt, Leggett and Cornell, Educational Consultants

Faculty Induction

will reduce turnover



Emerson C. Shuck
Dean, College of Liberal Arts, Bowling Green State University
Bowling Green, Ohio

BOWLING GREEN STATE UNIVERSITY, an institution with 6000 students, has grown rather rapidly over the last 10 years. This means that we have a relatively large number of new faculty members entering our staff each year.

We have made a deliberate effort to add faculty members at the lower range rather than to bring in established teachers from other institutions. We are interested in developing the core of our faculty for the future, and therefore our employment is in terms of not just filling a job for this year, but of starting young people on a definite long-term career with us. The development of our faculty orientation program came about this way.

Begins Before Employment

Orientation of a new faculty member begins literally with his pre-employment interviews. We employ only faculty members who have come to our campus for at least a full day of conferences. In these interviews with the department chairman, members of the department staff, the college dean, the academic vice president, and the president, we not only attempt to discover what the candidate is like, but also search for his reaction to what we are. We have adopted an approach of utter frankness about exactly what our institution is, what we think we are doing, and where we may seem to be unreasonable to someone coming from another environment.

We talk about the organization of higher education in Ohio because the university is a part of the state system. We outline the goals of the university in teaching and research, and the challenge that we present to each faculty member in these respects. We describe our attitude toward a pruned curriculum, so that the new teacher will know that he probably isn't going to insert a pet course into the offerings, either sooner or later. We try to show the relationship of our library to the instructional program. We describe carefully the kind of student we have, producing test scores and progress studies as evidence. We are fairly blunt about our stress on class attendance and our no-liquor regulation. We also discuss policies affecting salary, promotion, tenure, insurance, hospitalization, retirement and research aid.

Although it is sometimes discouraging to bring a candidate across the country for an interview and then tell him things that cause him to lose interest, such candor pays off.

The more formal orientation program for new faculty members takes place during the first weeks of school. All faculty members come back before the students for a series of meetings, and then participate in our freshman orientation program of two days. During this time the new staff members are brought together under the direction of the academic vice president for four meetings.

The first of the four meetings is devoted largely to mechanical matters, such as obtaining signatures for payroll and deduction purposes, making out applications for group insurance, retirement savings accounts, and so on. Each of these is explained in the process. At the remaining three meetings university personnel present important facets of university life. It is important for newcomers to know the personality and attitude of the persons behind the programs and to know where they can turn for answers in the future.

The president talks with them about the organization, history and philosophy of the university. The academic vice president presents our educational philosophy and its ramifications. The registrar describes how our records are kept and the faculty's responsibilities in making reports. The treasurer goes into some detail about our sources of income and the budgeting of funds.

The dean of students describes extracurricular life and the interrelations between it and academic endeavor. The director of the counseling center and others explain our residence hall counseling organization, student financial aids, clinical and medical services, and so on. Usually, there is printed or mimeographed material to accompany these talks.

To get an evaluation of the formal four-meeting orientation, after about two months we send to the newcomers a brief questionnaire asking for criticisms and suggestions. This device has led to useful developments.

His Own Department Follows

We work in most departments on a schedule of weekly meetings for graduate assistants, with individual supervision of each beginner by an older staff member. The effect of this is almost a built-in practice teaching program for college teaching; it is supplemented in some cases by graduate courses taught in the subject department. These deal with the problems of college teaching.

Finally, when contracts appear in the spring, we ask that each faculty member come to his dean's office to sign. This usually provides a good opportunity for the dean to talk with the new faculty member about his first year and his reactions to the university. ■

From a paper presented at the Association for Higher Education, Los Angeles, 1960.

"Boy, we really had good food at Old Nehigh!"
Will your alumns ever look back nostalgically
to the food services you provide?
For college students comprise a critical group—

When It Comes to Food Acceptance

Virginia Groth
Food Service Director, North Park College, Chicago

TO THE old saying, "You can lead a horse to water, but you can't make him drink," a sage has added, "Oh, yes you can, if you salt him well first."

The same logic can be applied in residence hall feeding where day after day for 10 months each year the dietitian faces the problems of food acceptance among the most critical age group – that of the college student.

How can we apply the "salt" to the college student and gain his food acceptance? What are some of the factors that affect the food acceptance in college food services? The answers might be found in these four areas: (1) administration policies, (2) food service employes, (3) the food service manager, and (4) the trends in food taste that set the habits of the people we serve.

A factor often overlooked in college dining halls is the influence that administration policies have on food service. Not only is the budget set up by the business manager, but many policies that govern the serving of food are determined by the college business office. For example, what will the limits on boarder allowance be? Should students be allowed two pats of butter and unlimited milk and bread? At what point will good will entertaining interfere with strict attention to food when social affairs conflict with regular meals?

An alert administration will recognize the part it plays in food acceptance. By providing for improvements in decor, the administration can help create the proper atmosphere necessary for good digestion. By supplying the students and faculty with good dining facilities and services, the administration can help incorporate the social graces into the total education picture.

The administration, then, sets the pace for dining hall service through its policies, but the dining hall manager is responsible for placing the policies in operation. She sets the pace for the employes, and together they help influence the acceptance of food.

Human Element Important

The employes on the serving line are the actual pace-setters for student food acceptance because they are in direct contact with the student. The employe who takes the time to smile and say Hello is partly responsible for good food acceptance. Somewhere along the serving line, a student should be able to hear his name called or receive a nod of recognition. The cashier, when punching the student's ticket, has an excellent opportunity to call the person by name.

From the standpoint of food acceptance, human hands are preferable to machines in dispensing food. Of course, human hands sometimes bring personality problems with them. I am reminded of a woman who served desserts in a stingy manner. When students made remarks about her hoarding, she snarled at them about being hoggish. She purposely kept only a few desserts on the shelf, so that two dishes would not be taken at once. Her attitude caused resentment, and the students tried to get away with as much as they could. When she was replaced by a pleasant person, the trouble disappeared.

Another example is the surly cashier who gave the impression that each student was hiding something or trying to get more than he deserved. When she was replaced by a cheerful person who reminded the student to take his glass of milk or butter for his bread, the students responded by asking to re-enter the line when they forgot something instead of sneaking into the line.

Any feeling of animosity created in the line carries over to the actual dining, and the digestive system is ready to "get even."

In our cafeteria line, the sandwich lady plays a double role. In addition to watching the sandwich counter and refilling empty spaces, she acts as a hostess, as she is the first person to confront the student when he enters the line. If her attitude is cheerful, the student starts down the line with a pleasant feeling.

The next employe behind the serving counter is usually the entree server. Her calmness acts as a brake on the student who is set to rush down the line.

Thus, each employe has an important role in setting the pace for good

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Her Speed? . . .

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food acceptance. The psychological concept of transference operates here. The student who enjoys good relations with his friends and family transfers this happy feeling to the employes behind the counter and they, in turn, if their associations are happy ones, transfer their cheerfulness to the student.

While the employes and the administration serve important roles in food acceptance, no one is more important than the food service manager. She is the cohesive agent in combining the important factors that can result in good, even excellent food acceptance. She acts as a coordinator between employe and administrator, and between student and employe.

The food service manager should combine initiative and imagination to encourage her staff to greater results. A salad preparation employe can be stimulated to look in magazines, copy ideas, and bring them to her chief. In addition to giving the employe a greater interest in her job, this will relieve the monotony of the same old salad served in the same old way. If the food service manager can endear herself to her employes, that actually has an indirect effect on food acceptance.

What Student Contributes

I have touched on some of the effects that the administration, employes and food service managers have on food acceptance. Now, we shall see what the student contributes to the good or bad acceptance of food.

Students come from many different backgrounds and geographical areas to live together in residence halls. The subject of food is discussed every day. Consequently, it becomes the joy or the scapegoat; it may be eagerly anticipated only to prove disappointing.

The dietitian, recognizing that college students have poorer food habits than younger children and that adolescent girls have different dietary practices than boys of the same age, is challenged to establish a sound nutrition program. Teen-agers need help in solving problems but they are the last to admit it, and many are unware of their problems.

Some students have weight problems and complexion difficulties. In these instances, the challenge lies in serving a wide selection of nutritious

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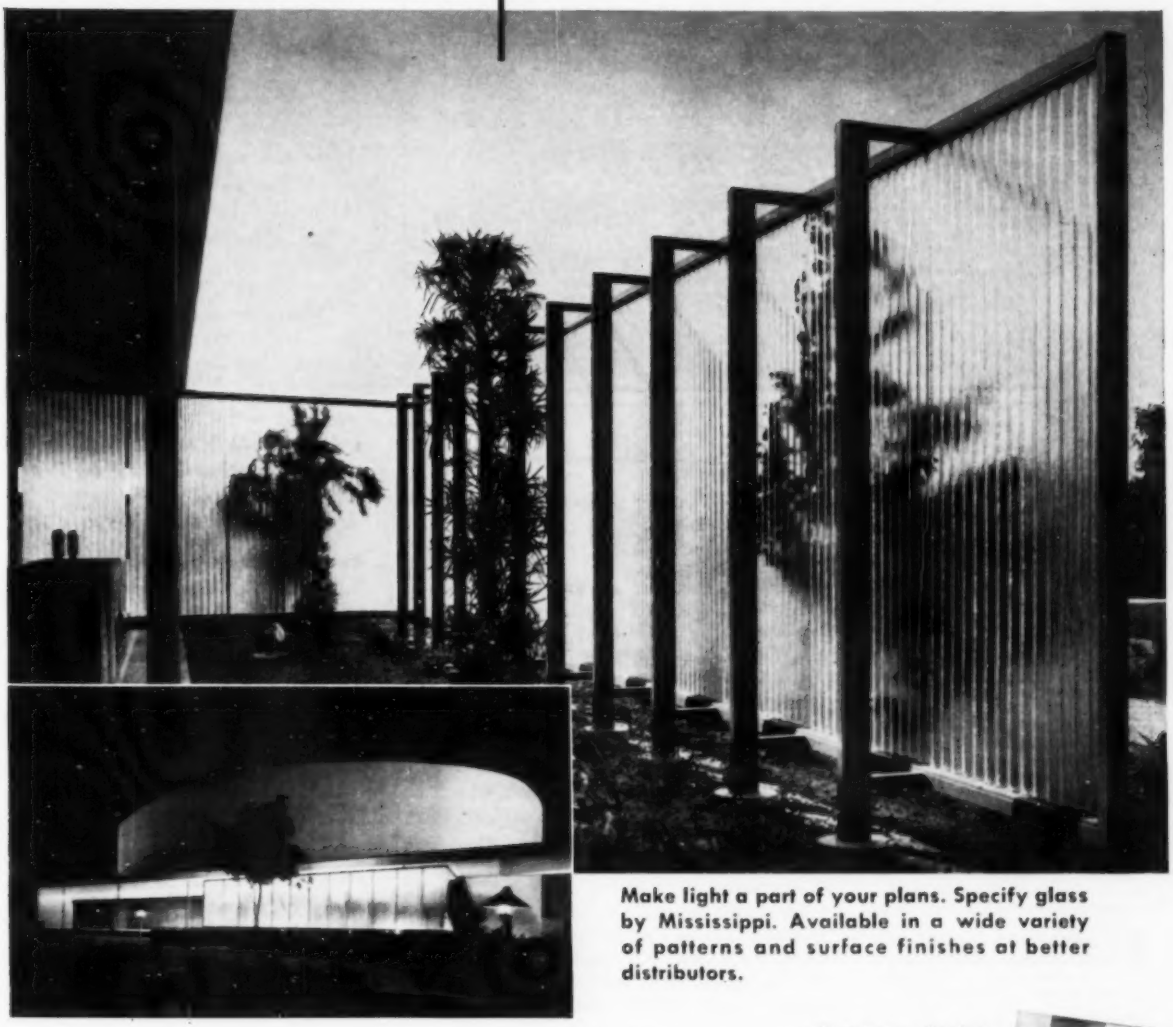

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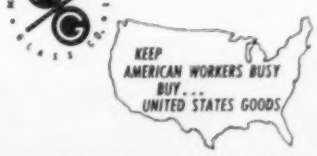

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food so that no matter what the student selects he will receive well prepared, healthful foods.

Why do the sales of certain "unpopular" foods rise steadily? Grilled liver sales, for example, have increased at our dining hall by a large percentage over a five-year period. To a lesser degree, rice pudding, vegetables in the cabbage family, and certain types of fish have gained in popularity. Why? We have made determined effort to buy the best quality of these foods and to follow through with good preparation.

Some foods never will look attractive on the steam table no matter how good they taste and, therefore, are best omitted from the menu. Dishes containing sour cream are in this category. Unless carefully watched and served in small quantities, they do not stand up and soon become unattractive.

Here once again, the food service director is challenged. The modern trend toward selective menus leaves her little choice, and often she must include items on the menu that she would prefer to omit.

What factors create problems for the dietitian as far as the students are concerned? Let's visit a dining hall and observe a few students.

Here is a young man, an only child, who has had the undivided attention of his mother since babyhood. He objects to "too much butter," wants just a little mayonnaise, and, "for Pete's sake, take off that fat!"

Next we meet a girl who is watching her diet, or so she thinks. Imagine her reaction when she sees gravy, meat and potatoes on every dinner menu! She hasn't learned to say No.

Then we have the student who always feels that the other plate, the one he didn't get, has more on it. He continually reaches for another dessert because the one he has is smaller.

Next in line is a loud, outspoken fellow who wants everyone to hear his likes and dislikes.

Unacceptable behavior in a college dining hall can often be corrected by someone's patient explanation of proper conduct in a serving line.

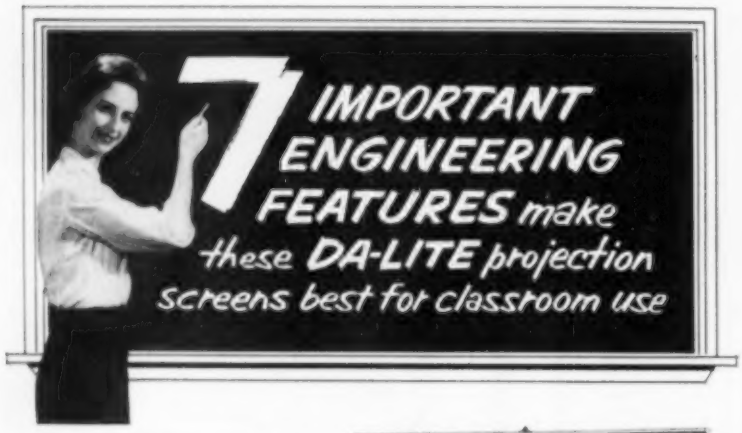
Then there are the food faddists, the "health" eaters who insist on knowing the origin of every food served. These questions should be answered to the best of the dietitian's knowledge. Only in this way can the student be convinced that he is getting the proper foods for his well being.

Real Problems for Directors

We have covered a few of the factors affecting food acceptance in college dining halls. The problems involved are very real to food service directors as well as to college administrators. Is there an answer to the problems? I can only give you my opinion.

As a food service director, I sense a challenge, a very real challenge in serving well accepted food. I sense the need of the student, who, though he may brag about his wants, yearns for someone to tell him: "Why don't you try some of this?" I sense the need of the new student, especially, to accept the comfort of discipline, though he may rebel against it. I feel the student need for respect, respect in all its senses – for food, authority, and physical surroundings that are his home away from home.

The foregoing factors added to the meal "surprise," to bright and cheerful surroundings, and to happy employes provide the right elements for promoting good food acceptance. ■



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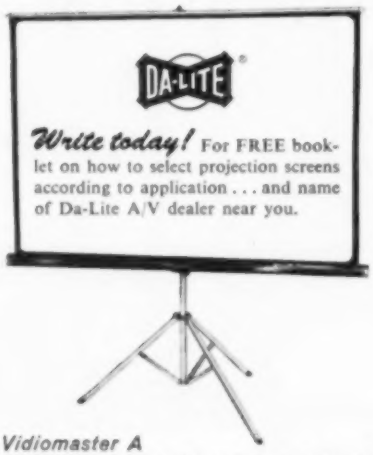

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NEWS

Center for Future College Presidents . . . Scientist Claims Students Ignorant of News . . . Forecast Teacher Shortage . . . Rensselaer Will Graduate Women Engineers . . . Program Evaluates Teaching Machines

Columbia Helps Schools Find Presidents

NEW YORK. — Sixteen persons are currently enrolled in the Center for Community and Junior College Administration at Teachers College, Columbia University. They are studying to become college presidents.

According to Dr. Walter E. Sindlinger, the center's director: "We don't say, 'Take this course and you'll be a college president.' We can only teach the things our experience has taught us a top community college administrator should know." Although Dr. Sindlinger said the center does not guarantee that its students will become college presidents, most of them eventually do.

Established in 1950, the center's course of study leads to a doctorate, an Ed.D. or a Ph.D. The students, who are usually in their late thirties, must have a master's degree, some teaching or administrative experience at a community college, and a recommendation from the president or dean of that college to be admitted.

"After finishing here," Dr. Sindlinger said, "our students take jobs such as registrar or director of student activities or director of evening studies. Most will work their way up to deans, and then to college presidents within five to ten years."

Two types of courses are available to students. One deals with the technics of administration and includes curriculum planning, finance and the design of school buildings.

The other, according to Dr. Sindlinger, aims at making the prospective president an "educational statesman" through courses in history and philosophy.

Dr. Sindlinger said the program "was planned with the help of alumni who already are presidents and deans; in effect, we ask them what they wished they had been taught when they studied here."

Windowless Building Planned for Temple

PHILADELPHIA. — A window washer's nightmare is scheduled for construction soon at the Temple University Medical Center.

A $4 million building that will stretch nine stories in the air and house research facilities for the university has been planned without windows to provide maximum wall and floor space. Research areas will be laid out in 4 square foot modules, enabling scientists to change rooms to any size, in multiples of four, up to 44 feet.

The building was designed without windows because it was found that research workers, seeking additional vertical work surfaces, had a tendency to cover most windows with racks, supports and instrument banks. It was also found that natural light often prevented researchers from getting the consistent lighting they needed.

The absence of windows will also make possible complete darkness when needed, accurate control of humidity and temperature, and elimination of dust and noise from external sources.

Index to Volume 29

The index to the second six issues of last year's College and University Business (July through December 1960, Vol. 29) has been printed separately. Send a note or post card for your complimentary copy to The Editor, College and University Business, 919 North Michigan Avenue, Chicago 11, Ill.

Northwestern Acquires Giant Computer

EVANSTON, ILL. — What is termed "an amazing boost in demand for the computer by university researchers" necessitated Northwestern University's purchase of one of the largest electronic computers currently in use. The new unit has roughly 50 times the capacity of the computer now in use.

The new computer will become part of the university's Computer Center which is used about 70 per cent of the time for research projects by faculty and graduate students. It is to be installed in July.

Last year 186 students took three courses the Center offers in computer use and programing. Another 85 graduate students are taking a special course showing them how to use the computer in their research.

Committee of Educators Appointed by Government

WASHINGTON, D.C. — A 12 man advisory committee of educators has been appointed to evaluate the effect of federally sponsored programs in the field of higher education. The appointment, announced by the U.S. Department of Health, Education and Welfare, stated that the committee will work with Dr. J. Kenneth Little and the Survey of Federal Programs in Higher Education as consulting body for the large project.

The basic function of the survey is to provide information and suggest principles and procedures upon which to base federal policies "which will best undergird the strength and independence of the nation's colleges and universities."

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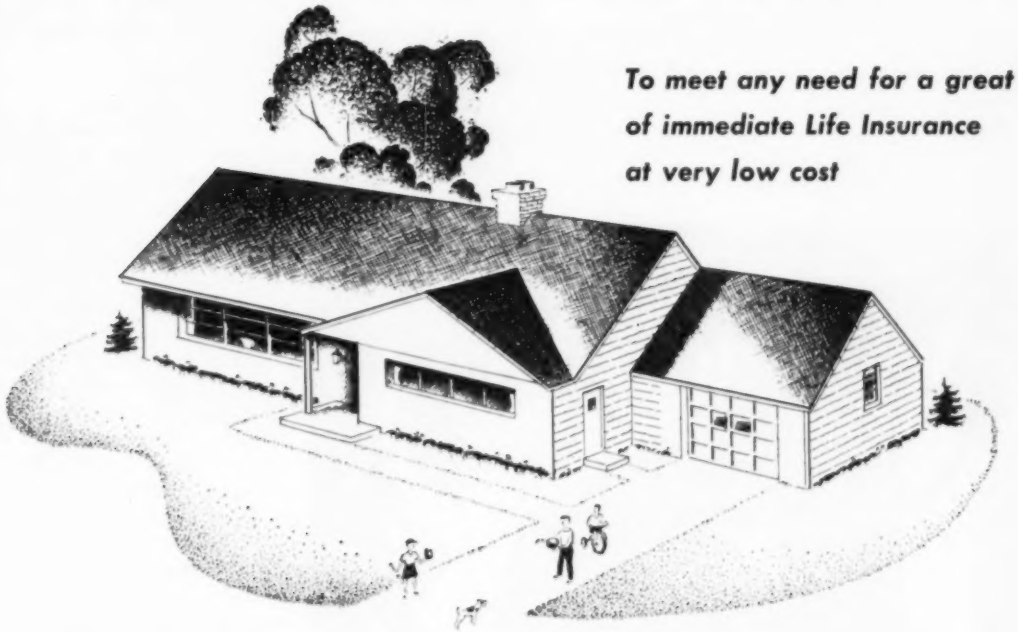

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As an illustration of the plan's low cost, a 20-year policy providing a $20,000 initial amount of insurance issued to a man age 30 calls for a level annual premium of $77.20. The cash dividend of $31.60 at the end of the first year reduces the first year net cost to $45.60, according to the current dividend scale. Dividend amounts, of course, are declared once a year and therefore cannot be guaranteed for the future.

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committee is headed by Dr. John E. Ivey Jr., professor at Michigan State University. Other members are the Very Rev. Paul C. Reinert, S. J., president of St. Louis University; McGeorge Bundy, dean of Harvard University; Felton G. Clark, president of Southern University; Lee A. DuBridge, president of California Institute of Technology; Douglas Knight, president of Lawrence College; Herbert E. Longenecker, president of Tulane University; Charles H. Odengaard, president of the University of Washington; John A. Perkins, president of the University of Delaware; M. H. Trytten, director of the office of scientific personnel of the National Academy of Science; John C. Weaver, dean of the University of Nebraska, and Helen C. White, professor at the University of Wisconsin.

Teaching Machine Grant Awarded to Nevada

RENO, NEV. — Development of an experimental program to evaluate teaching machines will begin this month at the University of Nevada. A year-long project, the program is being financed by a U.S. Department of Health, Education and Welfare grant.

To be administered by Dr. Willard Day, assistant professor of psychology, the $2156 research grant will be used for programing a teaching machine course in thinking and problem solving.

The program will incorporate results of preliminary study of the teaching machine theory, undertaken by Dr. Day, and will include adult and university student education during the spring and fall semesters.

During the spring, a course will be offered through the Statewide Services Program, Dr. Day said, primarily for high school teachers.

During the fall, a course on the technics of thinking will be offered to two groups of university students. One group will be taught with the use of teaching machines, while the second will be taught using the conventional classroom lecture method.

Student achievement, it is hoped, will measure the effectiveness of the machine theory.

Foundation Grant for the Birds

EAST LANSING, MICH. — Reconstruction of a pheasant pen to add a large "flying" cage for birds of prey is just one phase of the plans to add new facilities at the Michigan State University Kellogg Bird Sanctuary.

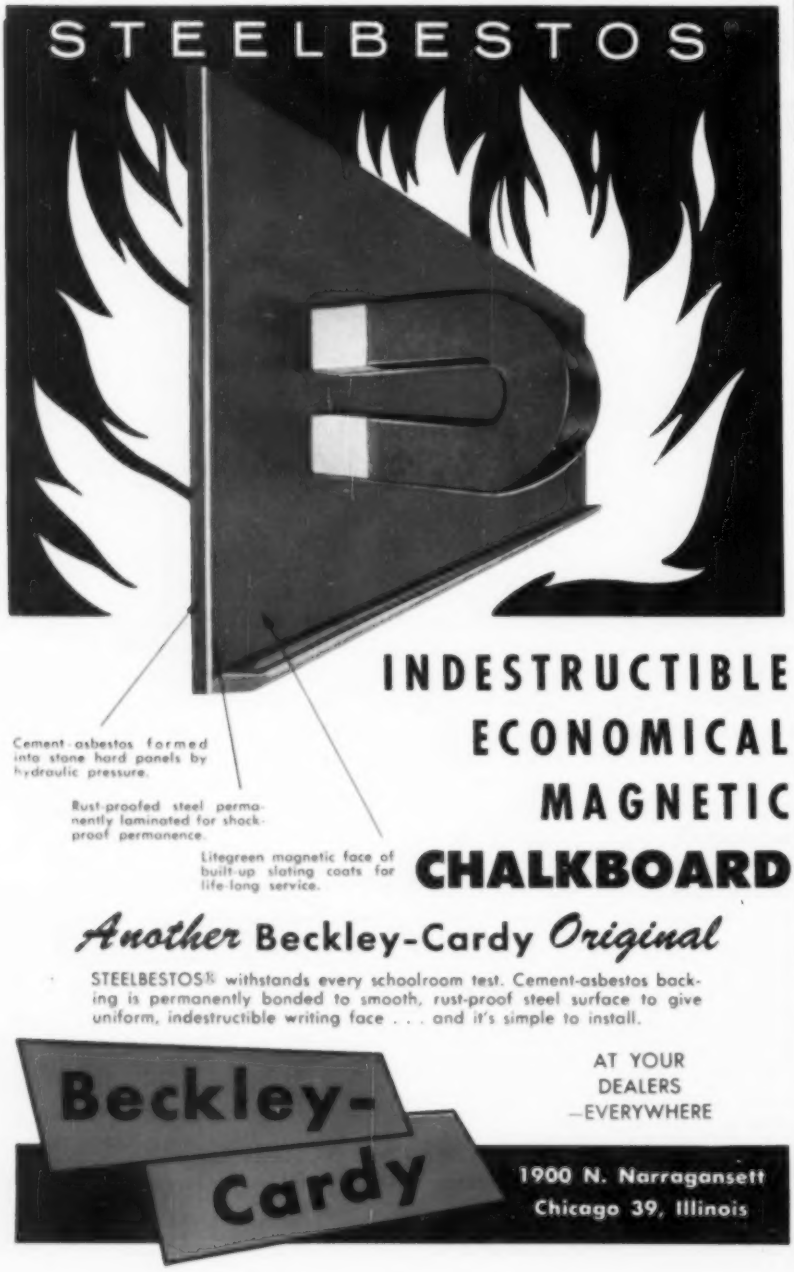
Increasing demand for use of the sanctuary prompted the Kellogg Foundation to grant $433,750 to the university for finance of new construction.

An aid for teaching conservation to school children and adult groups, the sanctuary has been visited by approximately 3 million persons.

With the exception of a lodge for adult groups, the present facilities are those originally provided by the late W. K. Kellogg when he gave the sanctuary to Michigan State.

Research Jobs Rise

PHILADELPHIA. — The University of Pennsylvania reported recently that it had received 305 research contracts valued at $12,900,000 during the first five months of 1960, compared with 603 contracts valued at $12,100,000 in the preceding 12 months.



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*"Terrazzo Maintenance" published by N.T.M.A., Washington, D. C. NTMA Flash, July 17, 1959.

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Federal Grant for Institute Support

BIRMINGHAM, ALA. — Financial aid for support of an eight-week Summer Institute for Secondary Teachers of Science and Mathematics has been granted Birmingham-Southern College.

A $71,900 grant from the National Science Foundation, Washington, D.C., was made recently to the school. The purpose is to raise the level of science teaching in the secondary schools by increasing the subject matter knowledge of teachers, especially those who received little undergraduate training in the sciences or those who have not had the opportunity for recent study in the sciences.

The Institute will be held on the Birmingham-Southern campus beginning June 19.

Parking for 1000 Cars at Northeastern

BOSTON. — Architects have been engaged by Northeastern University to prepare plans for construction of a multi-story parking facility to house 1000 automobiles at a cost of approximately $2 million.

Expected to be completed by the fall of 1963 or sooner, the facility will in a large measure solve the university's student and faculty parking problems. As enrollments increase and the university grows, additional parking structures will be provided.

Northeastern now provides parking for about 900 cars on regular campus parking lots.

Three-Towered Residence for Pittsburgh Students

PITTSBURGH. — An unusual concept in university architecture will begin taking shape this spring when the University of Pittsburgh starts construction of its new men's residence halls.

Three 88 foot diameter towers, set on a common three-story pedestal and

rising 15, 18 and 21 stories high, make it possible for each student living in there to have an outside room.

In addition to being the outstanding feature of the design, the towers adapt to space limitations of a predominantly urban site; eliminate unsightly and dark building courts, and separate noise producing areas from bedrooms.

The structure will house 1855 graduate and undergraduate students. Space also is provided for 13 graduate student counselors.

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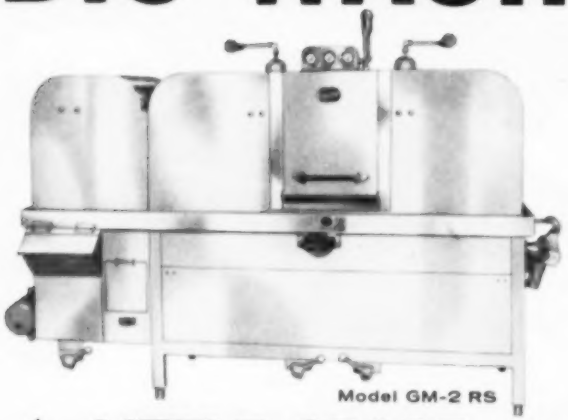

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The Dual-Drive GM-2 Dishwasher permits either continuous straight-through operation or a longer dwell in the wash compartment to provide washing action to match soil-removal requirements. Positive separation of wash and rinse streams means cleaner dishes faster. Wash spray openings are clog-proof.

Model RS Power Scrapper uses overflow detergent water from the dishwasher to scrap effectively—saves on hot water and operating costs.

The name Hobart on this and other dishwashers is your assurance of dependable, low-cost operation over the years. Get more facts from your Hobart dealer. The Hobart Manufacturing Company, Dept. 301, Troy, Ohio.

CLEANS EASILY—Large inspection and clean-out access door *lifts up...stays up...* so unit can be cleaned and kept sanitary.

Nationwide Factory-Trained Sales and Service . . . over 200 offices

Hobart® machines

A Complete Line by the World's Oldest and Largest Manufacturer of Scales, and Food Store, Bakery, Kitchen and Dishwashing Machines

BETTER BUY DISHWASHERS...
BETTER BUILT BY HOBART

descend to this level to facilitate off-street luggage unloading.

The cafeteria floor, just above the basement, will have two dining areas, central food storage, and preparation facilities for 2800 students at two mealtime "sittings."

Atop each tower will be a penthouse and sundeck. Penthouses will provide space for elevator and cooling machinery for the air conditioning units, gymnastic rooms, and soundproofed areas where students may practice musical instruments.

Exterior walls of the new structure will be limestone, prestressed concrete and glass. Materials and design were meant to reflect, in modern dress, the vertical theme of Pitt's famed "Cathedral of Learning," located just one block away.

The building plan, by architects Deeter & Ritchie of Pittsburgh, won an honor award in housing at the 1960 meeting of the Pennsylvania Society of Architects. Total cost of the project will be approximately $13 million.

Internal Revenue Kills Tax Exempt Life Income

WASHINGTON, D.C. — Revenue Ruling 60-370, published recently in the Internal Revenue *Bulletin*, has made the tax exempt life income plan a thing of the past.

Under the new ruling, donors establishing trusts or life income contracts with the express or implicit provision that the trustee reinvest appreciated securities in tax free securities are subject to tax on the capital gain realized in the sale. The recent ruling applies to all transfers of property.

Trusts and life income contracts that involve sale or exchange of property for securities which are not tax exempt are apparently unaffected.

This ruling is rooted in a broader study within the I.R.S. of its position on gifts to tax exempt charitable and educational organizations.

Educators Ask State Aid to Private Schools

SYRACUSE, N.Y. — The Association of Colleges and Universities of New York recently requested state aid, in the form of tuition supplements for students and matching funds for capital construction, to private schools.

Carroll V. Newsom, president of New York University and newly elected head of the association, at the

group's annual session at Syracuse University warned that unless relief came "every institution in the state will have to raise tuition by from $200 to $400."

Dr. Newsom said that at N.Y.U. the student's tuition paid 46 per cent of the cost of his education, and the school made up the difference. The new proposal would bring the state into the partnership, he said. Similar to the G.I. bill, which provided funds for educating veterans of World War II and the Korean War, the tuition supplements would go to each full-time resident attending a private college in the state.

Anonymous Donor Helps Bethany Pay for Building

BETHANY, W. VA. — Matching funds must be raised by Bethany College in condition of a $250,000 gift, by an anonymous donor, for a new science building.

The grant is conditional on the college's raising a like amount and thus providing the approximate sum needed for construction of the building, $500,000.

Ground-breaking will take place this year, and the target date for completion of construction is 1962. The proposed three-story building will provide laboratories, classrooms and offices for chemistry, physics and mathematics.

Survey Indicates Students Are Ignorant of News

NEW YORK. — When today's students cry "Pogo for president," they may be serious. A recent survey conducted by Dr. Josef E. Garai, scientist at the Staten Island Community College, points up a serious ignorance of current events on the part of the college student.

Speaking at the annual meeting of the American Association for the Advancement of Science, Dr. Garai said the main conclusion to be drawn from his study was that "colleges fail to familiarize the student with the world in which we are living; its problems, issues and rapid changes."

In a survey conducted at five of the city's colleges and covering 437 undergraduates, Dr. Garai found the following examples of news ignorance:

"One per cent failed to identify our president and vice president, 2 per cent our capital, and 15 per cent our

HOBART'S NEW

30-QT. MIXER

CUSTOMER-DESIGNED with CONVENIENCE CONTROLS

Model D-300

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★ *Positive speeds*
★ *Positive Hobart planetary action*
★ *Clean-lined...completely sealed for utmost sanitation*

From Hobart motor to bowl, this all-new mixer has been compactly designed to give you more efficient, easier operation. Exclusive ventilation system (no louvers or vent openings) keeps the ½ h.p. Hobart built motor cool while locking out dirt and ingredient dust. Feather-touch, spring-counterbalanced bowl lift, locks firmly and automatically in operating position. All controls centralized.

Optional equipment includes timed mixing control, thermal overload and low-voltage protector, magnetic-type starter; also full line of attachments. The Hobart Manufacturing Co., Dept. 301, Troy, Ohio.

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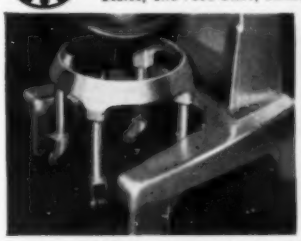

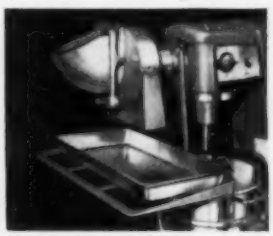

Optional equipment: bowl truck (left); convenient tray support for use with vegetable slicer, meat and food chopper, or juicer attachments.

BETTER BUY MIXERS... BETTER BUILT BY HOBART

For additional information, use postcard facing back cover.

Secretary of State. Eighty-three per cent did not know the name of our Secretary of Defense. 94.9 per cent had not even heard the name of the Secretary of Education. Eighty-seven per cent did not know the capital of Canada. 97.7 per cent didn't know the president of the most populous country in the world, although 65 per cent knew that Chiang Kai-shek rules Nationalist China.

"It is interesting to point out that the wrong answers often revealed astonishing confusion and ignorance. Twenty-seven students believed that Nehru is the Prime Minister of Israel, 34 students regarded [Gov. Orval] Faubus [of Arkansas] as a rock-and-roll singer, confusing him with Fabian."

Dr. Garai said that all colleges should have required courses on current events, with regular class discussions based on required daily reading.

Those who might disagree with Dr. Garai's proposals should note that: Some students interviewed believed Castro to be the capital of Cuba and the main product of Burma to be "Burma Shaves." Hyman Rickover was identified as an admiral of the air force by one student.

One of the few newspaper sections that appeared to be well read by students was the comic section, with 71 per cent of all students familiar with Pogo.

Lake Forest To Build New Student Union

LAKE FOREST, ILL. — Plans for a $750,000 student union building at Lake Forest College were recently approved. The three-story building, which will be completed in 1962, is one of several projected in a plan for the college's middle campus drawn by Perkins and Will, Chicago architects.

The Rev. Dr. William Graham Cole, president of the college, said the new recreation and dining facility will be the third major building to be built as part of Lake Forest's $12 million expansion program.

The dining room will have a seating capacity of more than 1000, large enough to seat the entire resident student body. Also included will be a bookstore, a student lounge, a reading room, a music room, a coffee shop, student organization offices, and bowling lanes.

City University Proposed in Place of Seven Colleges

NEW YORK. — The Board of Higher Education recently urged the reorganization of the city's seven municipal colleges into one city university. Such a university would constitute the largest institution under single auspices in the country. The seven colleges now under the board's jurisdiction had a total enrollment last fall of 91,460 students.

Gustave G. Rosenberg, chairman of the board, said the "need for a top-quality, publicly supported university here cannot be denied." Stating that he was "very optimistic" about the chances of establishing the city university, Mr. Rosenberg added, "I do not think that we will be denied the means of meeting this vital need."

The proposals, in effect, comprise a master plan for the development of public higher education in the city and were contained in a report submitted by the board's Committee to Look to the Future. It was made public by Mr. Rosenberg.

The recommended changes, which would also involve setting up new top-level systemwide administrative positions, would further unify the city's now largely autonomous senior and junior colleges. A step in that direction was taken last spring when the board appointed Dr. John R. Everett as chancellor of the municipal college system.

The development of graduate programs would enhance undergraduate studies because graduate programs help "bring distinguished people to faculties" and also attract "money for research and experimentation," the report said. The board claims that "the very extensive subsidy that the city university's graduate program will require must come from state and federal grants and private philanthropy."

"Because problems peculiar to the city are not duplicated elsewhere in the state," the city university would be "independent of State University control," the board asserts.

These references to the State University and the report's insistence that colleges here follow their tradition of tuition-free undergraduate education were seen as the board's answer to the recent recommendations of a special state commission, headed by

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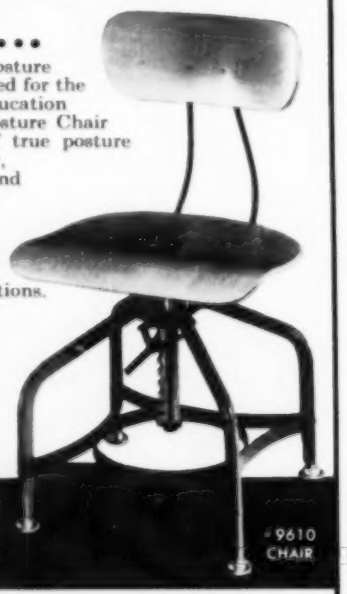
● Toledo classroom-tested Adjustable Posture Chairs and Typewriter Tables are designed for the specific and unique needs of Business Education instruction ● The #9610 Adjustable Posture Chair combines the recognized advantages of true posture seating with exceptional strength. Easy, TAMPERPROOF adjustments of seat and backrest accommodate the tall and short students ● The new #6100-L COORDINATOR Desk with all steel base and bi-level top is rigid, vibration-free, provides the most efficient working heights for both typing and clerical operations.



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They're all yours in the Von Duprin 66, the exit device that introduced the industry to the practical beauty of stainless steel.
Available in rim, mortise lock and vertical rod models (in bronze as well as stainless steel) with a smart new series of matching outside trims.
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You don't have to throw away the air you've paid to heat or cool. Even if it's loaded with odors, you can recover it all with activated charcoal. Air passing through charcoal filters is delivered completely odorless, sanitary, even fresher than outside air. No sprays, masking agents, or swabs.

Barnebey-Cheney activated charcoal may be applied in central heating and cooling systems or as portable units, in several sizes for rooms up to 12,000 cubic feet. You can choose from a wide range of capacities which are described fully in Bulletin T-322. Barnebey-Cheney, Columbus 19, Ohio.

The Ohio State University Medical Center (above) uses Barnebey-Cheney air purifiers in various areas for odor removal, and recovers air which otherwise might be exhausted. (Left) Portable unit used in cancer treating room.

activated charcoal air purification

Barnebey Cheney

Dr. Henry T. Heald, president of the Ford Foundation. The Heald commission proposes tuition for students who can afford to pay it.

Acute Teacher Shortage Predicted for Future

NEW YORK. — One of the nation's leading experts on higher education recently called the academic labor market dangerously inadequate.

Dr. Earl J. McGrath, executive officer of the Institute of Higher Education at Teachers College, Columbia University, said the liberal arts colleges are threatened with decline and deterioration because of an increasing inability to compete for "properly qualified teachers" with large universities and their undergraduate colleges.

The pessimistic outlook he offered, Dr. McGrath said, was based on answers to personal letters addressed this year to the presidents of 544 liberal arts colleges that are members of the Association of American Colleges. Letters were not sent to colleges affiliated with large universities.

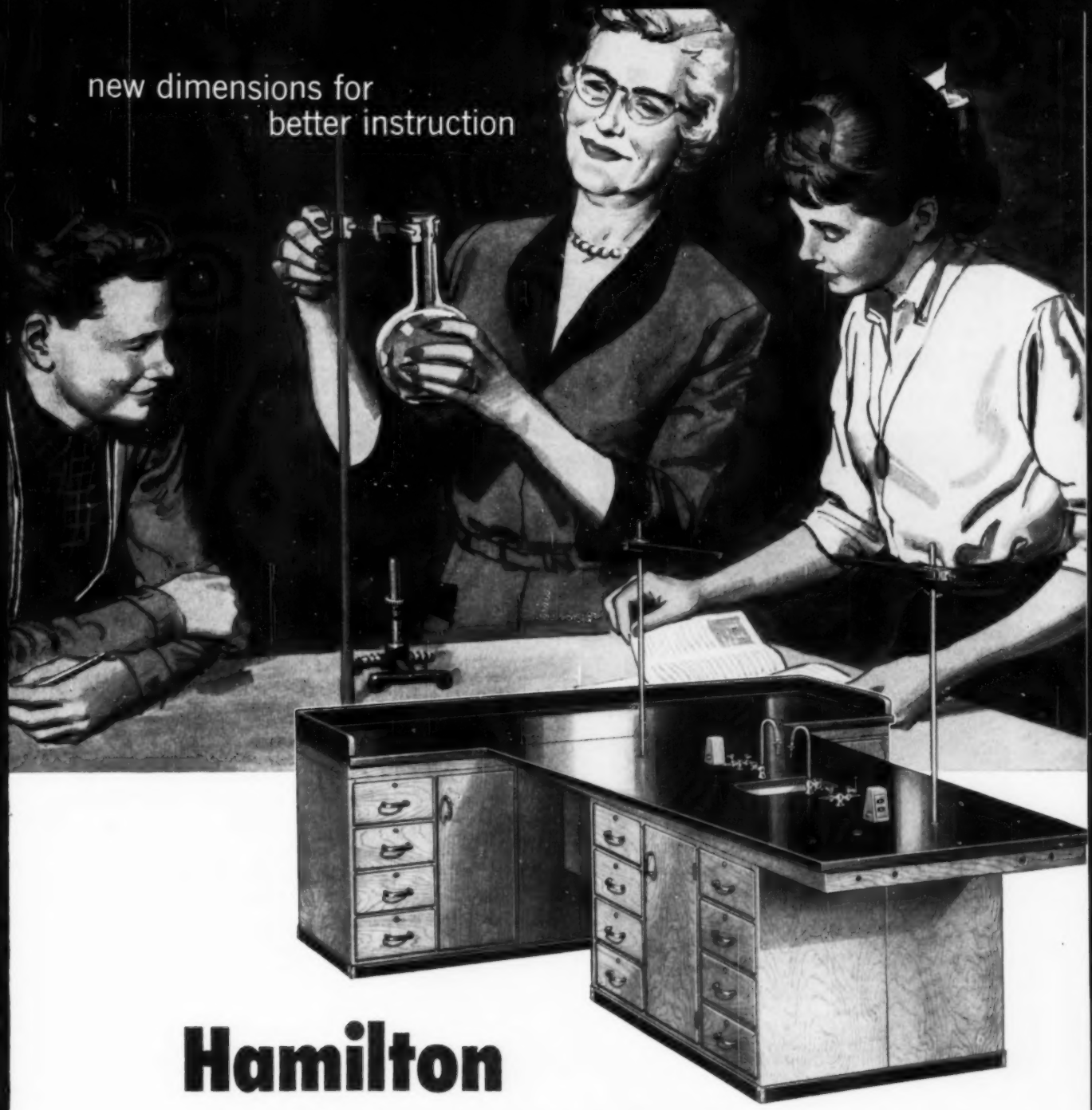
Dr. McGrath received replies to 92.5 per cent of his letters. According to 1958-59 figures, he said, the institutions thus sampled enrolled more than half a million students. The quality of undergraduate instruction will decline in the future, according to 67 college presidents. A total of 135 said they have already had to lower their standards in recruiting faculty members.

Dr. McGrath, former U.S. Commissioner of Education, said that unless colleges and graduate schools that train college faculties plan together, the shortage of adequately prepared teachers and professors will become chronic. He demanded that the pace as well as the quality of Ph.D. production be stepped up drastically.

Broker Gives Cornell $100,000 Gift

ITHACA, N.Y. — A 1916 graduate of Cornell University has made possible the construction of a 200 seat auditorium in the school's proposed new graduate school of business and public administration building.

Harold L. Bache, managing partner of the investment banking firm of Bache & Company, New York, recently gave $100,000 to the school for this purpose.



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activity-centered student tables

Your science laboratory equipment is "permanent" — but must *grow* with your teaching program. It must fit — *functionally* — your teaching methods and procedures, and be able to absorb increased enrollment loads, by virtue of its arrangement potential and planning.

Possibly no unit of school furniture is subjected to as much rigorous wear as laboratory furniture, so it must be *structurally* sound.

Hamilton units are built for school use. They're constructed of selected northern hardwoods, with extra-heavy mortise and tenon-type joints — delivering the most and best of what it takes to stand up in use.

And *all* construction, of *all* units — must be of *consistent* quality.

Hamilton gives you expert help in selecting from an infinite variety of laboratory arrangements, through the Hamilton unit system.

Plan with Hamilton — and your laboratory facilities will be more practical, deliver more value for the greatest number of years.

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new dimensions in time and space efficiency for: physicians; dentists; industrial, hospital, school laboratories; draftsmen; printers; libraries; home laundries.

Hamilton Manufacturing Company, Two Rivers, Wisconsin

Institution Attorneys To Hold First Conference

SANTA MONICA, CALIF. — The first National Conference of University Attorneys will be held at the University of Michigan in Ann Arbor. The conference, designed to aid institution attorneys, will convene April 17 to 19, according to Dr. Thomas E. Blackwell.

Dr. Blackwell, an educational management consultant for Washington University in St. Louis and a regular contributor to COLLEGE AND UNIVERSITY BUSINESS, states that "an excellent program has been put together" and that interested attorneys should write to Dr. M. M. Chambers, U.H.S. 4200-G, the University of Michigan, Ann Arbor, for a copy of the program of the conference.

Enrollments Projected

COLUMBUS, OHIO. — With the aid of a $3775 Ford Foundation grant, Dr. Ronald B. Thompson of Ohio State University will use 1960 census figures in projecting total college enrollments for each state, excepting Alaska and Hawaii. The study, to be completed during the latter part of April, will predict enrollment trends through 1977-78. Alaska and Hawaii are omitted from the project due to lack of pertinent information concerning school attendance in those areas.

Rensselaer To Graduate Women Engineers

TROY, N.Y. — A new program, designed to open the doors of Rensselaer Polytechnic Institute to young women who want careers in engineering, science and architecture, was announced recently.

Dr. Richard G. Folsom, president of the institute, stated in the announcement that Rensselaer and its Troy neighbor, Russell Sage College, a liberal arts school for girls, will undertake a program of affiliation. Women students will reside at Sage and attend classes at Rensselaer.

A joint statement issued by the presidents of both schools said: "It is hoped that this cooperation between two independent institutions may offer a unique opportunity for women gifted and interested in modern technology to obtain the best in professional education, while at the same time enjoying the many benefits to be derived from life in a college of liberal arts for women."

$3½ Million Music Complex for Oberlin

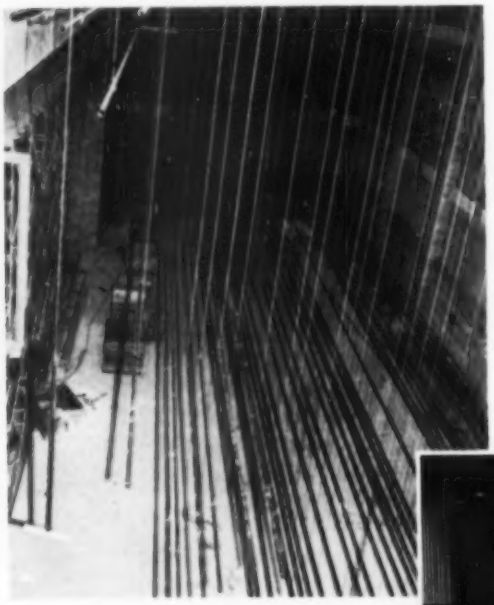
OBERLIN, OHIO. — Construction of a three-story practice room building for Oberlin College's new conservatory of music complex recently began here.

The structure, part of a new conservatory group that will include a teaching and administrative building, concert hall, small recital hall, and library, will cost $755,415.

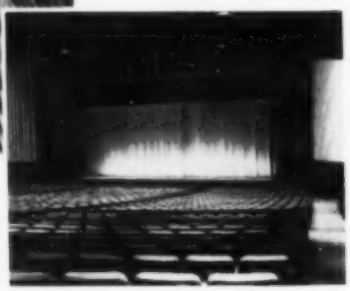
Constructed of concrete and steel, the new unit will contain 182 rooms for instrumental, voice and small ensemble rehearsal and practice. Pipe organ practice will take place in 18 especially designed rooms.

A special college development campaign is under way to complete the funds necessary for the total project, $3½ million.

When the practice unit building is completed the college will remodel Rice Hall, the present practice building, for use by the humanities and social science departments.



this is a stage



Eastman Kodak Recreation Center Auditorium. Architects: Kodak Park Works Engineering Division. Contractor: A. J. Hoffend & Sons, Rochester, N. Y.

A Maze of Ropes and Rigging Woven into Order and Efficiency by

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Transforming miles of ropes, and hundreds of sheaves and pulleys into a practical stage takes a special combination of talents, plus a lot of technical experience. In over 75 years of manufacturing stage equipment and creating famous stages throughout the world, Clancy has become a theatrical institution. That's why so many architects and engineers put their backstage problems and planning into the capable hands of Clancy Stage Engineers.

Today, Clancy engineers — working with a nation-wide network of Preferred Dealers—plan and install stages of all sizes and types. When called upon early in the planning phase of theater or auditorium construction, Clancy engineers are doubly valuable —pointing out possible savings and eliminating problems before they can crop up.

Write for Free booklet: "How to Build a Modern Stage," and for the name of your nearest Clancy Preferred Dealer.

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HOW TO PROVIDE ENOUGH ICE FOR 3,000 THIRSTY STUDENTS...

NORTHEASTERN UNIVERSITY'S new $1,500,000 Graduate Center serves more than 3,000 graduate students in the Boston area. The new building includes only the most modern equipment.

A MODERN SCOTSMAN ICE MACHINE solves the ice supply problem. Here, Richard Prendible, assistant cafeteria manager, scoops up pure and perfect Super Flakes from the handy bin.

USE A HIGH-PRODUCTION SCOTSMAN ICE MACHINE!

The 3,000 students at Northeastern University's magnificent new Graduate Center in Boston never worry about having enough ice for refreshing cold drinks . . . not with a modern SCOTSMAN *Super Flaker* on the job in the cafeteria!

The convenient automatic ice maker serves up a constant supply of perfect flaked ice to meet many food and beverage needs. Using ice for attractive display of salads, cold plates, butter and chilled desserts, for example, increases selection of such items and keeps them freshly appetizing as well.

Cuts ice bills 90%. Best of all is the amazing low cost of the ice produced . . . SCOTSMAN *Super Flakers* make *a full hundred pounds* for as little as 8 pennies! This represents a big money saving of up to 90% under the cost of having ice delivered!

SCOTSMAN *Super Flakers* keep themselves full of hospital-pure ice automatically. A flick of the switch starts a continuing flow of ice into the self-contained, stainless-steel storage bin. When the bin is full, a thermostat automatically shuts the machine off; as ice is removed below the thermostat level, the machine turns itself on automatically to fill the bin.

A model for any need. Whether your students number 300, 3,000 or 30,000, there are SCOTSMAN Ice Machines that are just right for you.

You can select a *Super Flaker* from among 24 different models, producing from 100 to 4,000 pounds per day: For moderate ice requirements, select a SCOTSMAN with a built-in ice bin. For large volume needs, choose a continuous-flow model with a companion *Super Bin*.

Or, if you prefer to use the cubed type of ice, choose from among eight SCOTSMAN *Super Cubers* that make from 50 to 500 pounds of big and solid, long-lasting ice cubes per day.

SCOTSMAN Ice Machines are easy to install, require only routine minimum cleaning, are as dependable as a standard home refrigerator. Wouldn't *your* school or college like to get the facts on SCOTSMAN?

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EXPORT OFFICE: 15 Williams St., New York, N.Y.

Kenyon College Ends Successful Fund Drive

GAMBIER, OHIO. – Successful conclusion of the $1.8 million development drive that Kenyon College launched in April 1959 was announced recently by President F. Edward Lund.

Part of a long-range development program with a 10 year goal of approximately $8 million, this initial phase was undertaken with the idea of satisfying immediate needs of the college, which include: a general library, an addition to the science building, an expansion of the divinity school's library, completion of the field house, and repairs to present buildings.

Kresge Grant to Syracuse

SYRACUSE, N.Y. – A $100,000 grant has been made to the Syracuse University by the S. S. Kresge Foundation. The money will help establish a language center as part of a $1.3 million classroom building now under construction, according to William P. Tolley, chancellor.

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BUCKSTAFF — since 1882 — a most self-sufficient and respected maker of the finest institutional furniture. Wholly-owned facilities include a sawmill, dry kilns, plastic laminating plant, chair and table factory — all located on a 20-acre site in an area where expert wood craftsmanship has never been the exception — but rather — a tradition — a matter of local pride. And, because BUCKSTAFF is all this, it means you deal with one dependable source and centralized responsibility. It means also that you get these highly desirable, exclusive library furniture advantages . . .

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- Resilyte high pressure plastic surfacing in a selection of matching wood grains at no extra cost.
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NAMES IN THE NEWS

George W. Beadle

George Wells Beadle, Nobel Prize winner, distinguished scientist and educational administrator, has been appointed chancellor of the University of Chicago. He is now acting dean of the faculty and chairman of the division of biology at the California Institute of Technology, Pasadena.

Mr. Beadle, who won the 1958 Nobel Prize in Medicine and was recently featured with 14 other scientists on the cover of the "Men of the Year" issue of *Time Magazine*, has been on the faculties of, received degrees from, and held visiting lectureships at some of the leading educational institutions in the world. Among them are: Yale, Rutgers, Northwestern, Cornell, Harvard, Stanford and Oxford.

Author of many technical papers, Mr. Beadle holds the Albert Einstein Commemorative Award (1958), the Emil ChristianHansen Prize of Denmark (1953), and the Lasker Award of the American Public Health Association (1950). He is also on the President's Science Advisory Committee and its Panel on Basic Research and Graduate Education.

Mr. Beadle will assume his new post within the next 60 days.

Bernard D. Shea, formerly with the National Council of Independent Schools in Boston, has been appointed the director of development at Bradford Junior College, Bradford, Mass.

William T. Haywood has become business manager at Mercer University, Macon, Ga.

V. E. Thompson has been appointed business manager of Midwestern University, Wichita Falls, Tex. He succeeds **W. L. Dunsworth.**

Dr. Clarence Scheps, vice president and controller of Tulane University, New Orleans, is the new secretary of the Southern Association of College and University Business Officers.

W. M. Fiveash recently assumed the position of business manager at McMurray College, Abilene, Tex. He succeeds **Garnet Gracy.**

A. E. Marien, staff auditor at the University of Illinois, was elected secretary of the newly organized Central Illinois Chapter of the Institute

Eastern Illinois University, Charleston, Illinois; Architects and Engineers: Lundeen & Hilfinger, Bloomington, Illinois; Mechanical Engineers: Brown, Manthei, Davis & Mullins, Champaign, Illinois.

Cold weather or hot –

Every classroom creates its own climate with HerNel-Cool unit ventilators

● Winter or summer—the new Fine Arts Center is a campus favorite at Eastern Illinois University, Charleston, Illinois. Why? One good answer is the year-round air conditioning system provided by Herman Nelson HerNel-Cool unit ventilators.

Herman Nelson unit ventilators adjust *automatically* to the thermal requirements of each classroom. During cold weather, HerNel-Cool units provide heating, ventilating and natural cooling (with outdoor air). In warm weather they air condition classrooms and control humidity, creating a clean, inspiring thermal environment on the hottest summer days.

And remember, you can provide for future air conditioning by installing HerNel-Cool unit ventilators *now* to serve as standard unit ventilators. This can be done at about the same cost as systems *not* adaptable to air conditioning.

When you decide to switch to year-round air conditioning, it's simply a matter of installing a packaged liquid chiller in the boiler room, at an estimated cost of 50¢ per sq. ft.—*or about ⅓ the cost of installing the lowest cost air conditioning system.*

At *this* price, can you afford *not* to provide for air conditioning?

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American Air Filter

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School Air Systems Division,
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Lightweight aluminum provides easy carrying, easy lifting of hot (or cold) beverages in this completely insulated container and dispenser.

Seamless, easily cleaned. Flavors stay in the beverage, not the container! Available in 3-gal. and 5-gal. sizes. Nondrip faucet with built-in locking device.

FOOD SERVICE EQUIPMENT DIVISION

wear-ever ALUMINUM, INC.

NEW KENSINGTON, PA.

of Internal Auditors. **J. B. Walker,** auditor at Illinois State Normal University, was elected treasurer. One of the many concerns of the new association is higher education.

E. R. Richardson has been appointed business manager at Marion Military Institute, Marion, Ala. He succeeds **W. H. Rodiman.**

James E. Osborn, formerly director of purchases in the University of Illinois business office, has succeeded the late **Howard A. Hazleton** as business manager of the Chicago colleges and divisions of the university. Mr. Osborn joined the university staff in 1945 as a senior purchasing assistant and became assistant director of purchases in 1948, director in 1958. He is replaced as director of purchases by **Lester E. Elliott,** the former assistant director of purchases.

J. E. Osborn

L. E. Elliott

Niels C. Beck has been appointed assistant director at the Armour Research Foundation of the Illinois Institute of Technology, Chicago. He succeeds **Dr. Christopher E. Barthel Jr.,** who resigned last month to become program director for international activities of the National Science Foundation, Washington, D.C. Mr. Beck has served as director general of the Union of Burma Applied Research Institute, an A.R.E. project, for the last four years.

Ray Spaeth, former vice president and treasurer of the Illinois Institute of Technology, Chicago, is now president of the Beverly Bank in Chicago.

Russell G. Frantz, treasurer of Heidelberg College, Tiffin, Ohio, for 39 years, is now vice president for investments.

John H. Ernest, formerly treasurer and controller of Washington University, St. Louis, is now vice chancellor in charge of business and finance, treasurer and secretary of the university.

Charles R. Longsworth, formerly in the advertising business, assumed the newly created position of assistant to the president of Amherst College, Amherst, Mass., on January 15. His

Mr. Du

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I've got the products To clean most all, From tableware to dining hall Just pick up your phone* And make the call.

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DuBois Chemicals

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. . . used by restaurant operators everywhere to de-stain and keep plastic and china stain-free. Helps keep dish machine clean too. Use regularly in the machine, 2 or 3 times a week, along with other DuBois compounds. Packed in tight seal control cartons to keep destaining inside. Ask your DuBoisman about this and other dish machine products for all water conditions.

40 years of cleaning experience at your service.

DuBOIS CHEMICALS, INC.

Broadway at 7th • Cincinnati 2, O.

UNGUARDED KEYS!

AN OPEN INVITATION TO THEFT! VANDALISM!

Today's high cost of school property, equipment, and supplies, represents an *investment that must be protected!*

You get that protection with TELKEE—the modern key control system designed for *complete security plus convenience!* TELKEE files your keys—making them accessible to authorized personnel only!

TELKEE indexes your keys—making them accessible fast—without wasting time to look for them!

Used by schools and institutions of all types and sizes, there's a TELKEE system just right for your requirements!

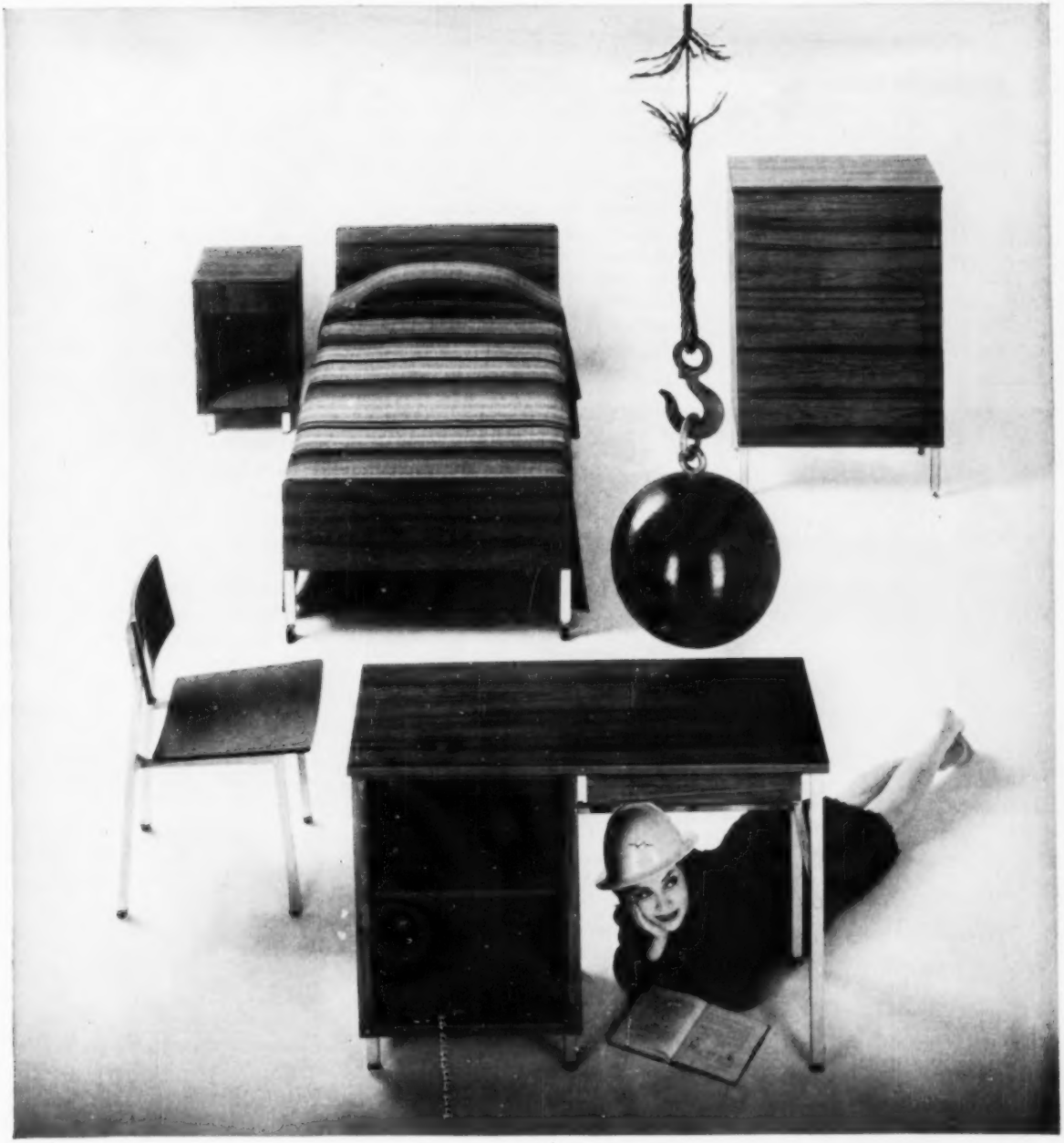
FREE illustrated booklet. For complete information, write:

P. O. MOORE, INC.

A Subsidiary of SUNROC Corporation

TELKEE The MOORE KEY CONTROL System

GLEN RIDDLE PENNSYLVANIA



DEMOLISH CARES AND COSTS WITH FIBER-X

Only Royal dormitory furniture gives such completeness, such flexibility, such indestructibility! Fiber-X, just one of Royal's complete lines of dormitory furniture, has been said to outlast the building. (We only give it a ten-year guarantee.) It has also been called the world's most nearly perfect furniture, and with good reason! In addition to modern design, the enduring surface beauty of Fiber-X won't chip, peel, scratch, check, warp, dent, or crack. And the unequalled inner strength that comes only from welded square steel tubing makes maintenance-free, long-range economy claims become real. What's more, the wide choice of wood grain finishes is available with matching or contrasting tops. Fact is, all components are interchangeable or individually replaceable thanks to Royal's unique "Skyscraper" construction.

Extra space an extra problem? You'll be especially interested in the double bunk bed illustrated at the left. Write today for complete information on Fiber-X and the entire Royal dormitory furniture line. ROYAL METAL MANUFACTURING COMPANY, Dept. 40-B, One Park Avenue, New York 16, N. Y. In Canada—Galt, Ontario. SHOWROOMS: New York, Chicago, Los Angeles, San Francisco, Seattle; Galt, Ontario.

Royal
DORMITORY FURNITURE

For additional information, use postcard facing back cover.

primary responsibility will be development and college resources.


Roy France

Roy France has joined the staff of Northern Illinois University, DeKalb, Ill., as division chief accountant. Mr. France has served for five years as a senior accountant with Ernst and Ernst of Chicago, and since 1955 has been division controller with the Geneva Modern Kitchens division of Acme Steel Company in Geneva, Ill. In a newly created position, Mr. France will supervise all university accounting.

D. N. Peterson has been named business manager of San Angelo College, San Angelo, Tex. He succeeds **William Carpenter** in the position.

Thomas Dunworth, former campaign director of the Columbia-Presbyterian Medical Center Fund in New York, has been named director of medical development at Western Reserve University, Cleveland, and director of development at University Hospitals. Mr. Dunworth, who assumes the position this month, will be responsible for fund raising and development at the University Medical Center.


Logan Wilson

Dr. Logan Wilson, past chancellor of the University of Texas, is the new president of the American Council on Education. Dr. Wilson was elected to the post by members of the Council at a special meeting held in January. The presidency of the Council, a full-time position, was held by **Dr. Arthur S. Adams** for the last 10 years.

Grant Venn, formerly superintendent of public schools, Corning, N.Y., has succeeded **Peter P. Mickelson** as president of Western State College of Colorado, Gunnison.

J. D. Park, past dean of education at Georgia Southern College, Collegeboro, is now president of Olympic College, Bremerton, Wash.

Garland Godfrey has assumed the presidency of Central State College, Edmond, Colo. He was formerly superintendent of schools in Durant, Okla.


R. McAllister Lloyd

R. McAllister Lloyd, chairman of Teachers Insurance and Annuity Association (T.I.A.A.) and College Retirement Equities Fund (C.R.E.F.), was presented recently with the Westminster School's citation for leadership in education. The citation, inscribed on a plaque, reads: "For his leadership in contributing to the economic security of the teaching profession, and for his devoted service to governmental, humanitarian and historical institutions, to the honor of his school." The citation is awarded by the alumni association of the Westminster School, Simsbury, Conn., and went to **Clinton P. Rossiter,** professor of government at Cornell University, last year.

Dr. James I. Doi, a former director of institutional research at the University of Colorado, was recently appointed associate provost. Working with **Oswald Tippo,** the provost, Dr.

(*Continued on Page* 83)

PHILCO
Closed Circuit TV Systems

INCREASE SCOPE AND EFFECTIVENESS OF INSTRUCTION

The high value of closed circuit TV in education has, of course, been recognized for some time . . . meanings are clearer . . . impressions are deeper . . . attention is greater. Instructional TV also allows the great economy of multi-group instruction, and makes specialized teaching talent available to more students.

Philco's broad experience in instructional TV is your assurance of system flexibility, economy and adaptability. Fully transistorized equipment featuring Philco's "building-block" design assures ease of operation, freedom from maintenance problems and the satisfying of expanding TV needs without costly replacement. Philco engineers will be glad to assist you in planning your closed circuit TV system. Write today stating your problems.

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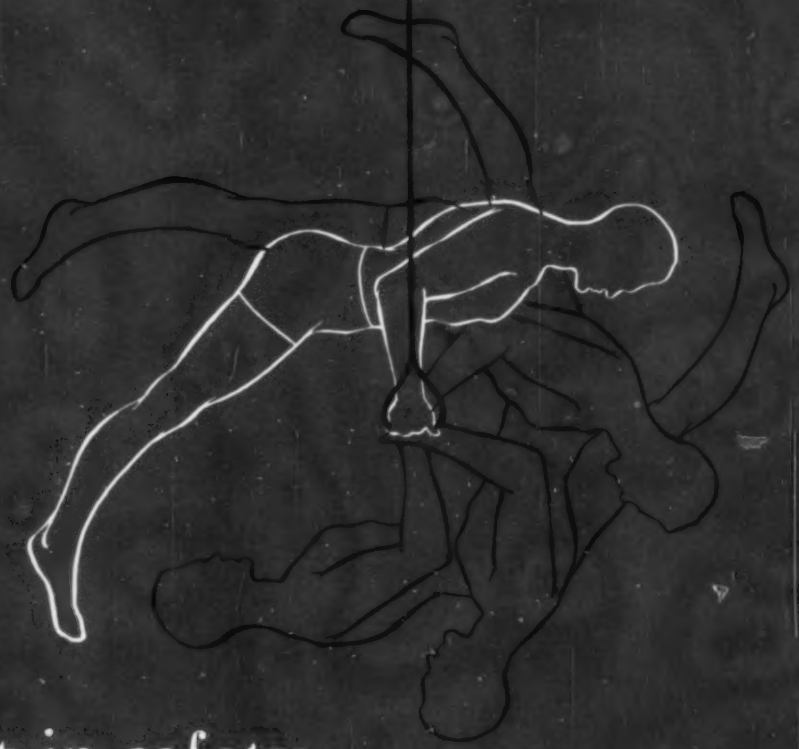


First in safety
Finest in quality
Premier Gym Mats

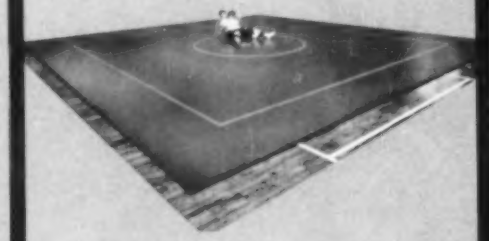
premier

ATHLETIC PRODUCTS CORPORATION, RIVER VALE, NEW JERSEY

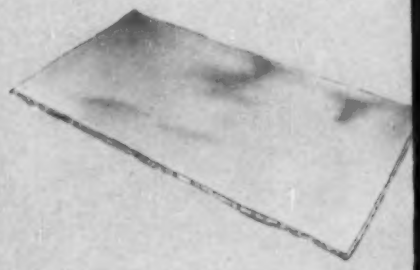
premier quality mats

Maximum protection for your gym requirements

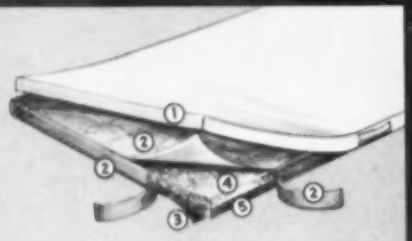
"DUO-CROWN" tumbling mat—unique double top construction that eliminates all major causes of mat failure. This is the mat that young stars like to "hot".



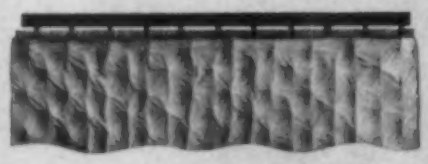
"PREMIER-ENSOLITE" wrestling mats—completely absorbs shock—made with odorless closed cell Vinyl. The exclusive "TUFFCOAT" covering is flexible, non-abrasive, and washable—will not chip, peel, or crack.



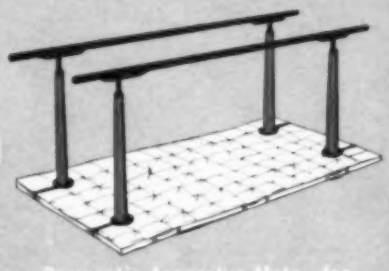
"FLYWEIGHT" gym mats—ideal for elementary schools' and girls' gyms. Lightest weight gym mat made—easiest to handle and store.



"UNIVERSITY" Mat Line—five styles, combining superlative construction with the finest materials available. "The last word in quality, the first word in performance."



Basketball Wall Mats—for gym walls, corners, posts, radiators, and other hazards. Made in permanent or removable styles of the finest protective materials. Available in any size.



Gymnastic Apparatus Mats—for safety and protection these mats are custom designed to fit each piece of gymnastic equipment. Available in any mat style.

At no obligation, please have your dealer or distributor call on me. The best time and day of the week is _____

NAME: _____

SCHOOL OR COLLEGE NAME: _____

ADDRESS: _____

CITY _____ STATE _____

Premier Athletic Products Corporation

Dept. "A" River Vale, New Jersey

FOR OVER 35 YEARS
PREMIER has continued to set the pace in mat design and construction.

For further information use convenient reply form:

PREMIER

Why Every School needs the Airkem Program for Environmental Health!

Everybody benefits! Children "do better in school." Illness drops, attendance climbs. Teachers, parents and visitors notice a big difference when you put the Airkem program to work and bring a clean, odorless, agreeable and *healthful* new "climate" into the school.

The Airkem program gets to the heart of the problem. It thoroughly cleans all surfaces. It kills germs and other microorganisms. It kills insects. It kills odors by counteracting them. And it gives an air-freshened effect without adding obnoxious perfumes or chemical smells. It is the only *complete* program of basic sanitation maintenance.

There's no mystery about it! All you do is make sure the proper Airkem product is used in its proper place in the school. Procedures are simple—and they actually *save money and time* by combining several housekeeping jobs in one, freeing your maintenance staff for other work. Inquire!

See opposite column for one specific Airkem benefit ▶

AIRKEM
For a Healthier Environment through Modern Chemistry

(*Continued From Page* 80)

Doi will have responsibility for conducting studies and taking action in the major academic areas.

Dr. Ray Bryan, head of the department of vocational education at Iowa State University, Ames, was named executive secretary of the Iowa State Education Association recently.

Don Willard

Don Willard, former assistant vice president of the Teachers' Insurance & Annuity Association, has been made a vice president of T.I.A.A., according to a recent announcement by **William C. Greenough,** president.

Elvis J. Starr Jr., president of the University of West Virginia, has been appointed Secretary of the Army in President Kennedy's Administration.

James L. W. West Jr. has been appointed to the newly created position of executive secretary to the president at Virginia Polytechnic Institute, Blackburg. The position will enable the president's office to devote more time to the development of specific aspects of the institution.

Dexter M. Keezer, former president of Reed College, Portland, Ore., and **Carter Goodrich,** Columbia University professor, have been appointed coordinators of a cooperative program in business education which has been undertaken by the graduate school of business at Columbia University and the faculty of economic sciences at the University of Buenos Aires under an agreement between the Argentine Republic and the United States Government.

Glenn T. Seaborg, former chancellor of the University of California, is the new chairman of the Atomic Energy Commission in President Kennedy's Administration.

C. D. Onderdonk

Chester D. Onderdonk, director of plant and properties at New York University, died recently. He was 62 years old. As director of plant and properties, he supervised new construction and maintenance of N.Y.U.'s physical plant. He was also a director of the Washington Square Association.

Locker Rooms are for HEALTH —not Hazards!

Here's where trouble starts—and here's where trouble can be *stopped in its tracks!* Put Airkem on the job. Three Airkem products "gang up" on the locker room problem. First, they kill bacteria, fungi, protozoa—on the floors, on the benches, in the foot-bath, in the shower-room and the locker room itself. They kill odors, too, by counteracting them. And they keep everything clean, clean, clean.

There's really no excuse for an odorous, contaminated locker room area. Daily maintenance with the Airkem method removes the cross-infection danger, corrects the odor nuisance, creates an air-freshened effect, all in one basic cleaning operation. Your staff does no additional work, but accomplishes significant improvements toward the comfort and well-being of students, faculty and visitors. Ask your near-by Airkem man.

PFSST

FREE!

Handy pocket-size work-bottle for spot-cleaning of walls, benches, lockers. Mail this coupon today!

John Hulse, **Airkem, Inc.** Dept. CU-2
241 E. 44th St., New York 17, N. Y.

Send bulletin "Airkem Procedure for Locker Room Maintenance" and free PFSST bottle to

Name_____

Title_____ School_____

Address_____

City_____ Zone____ State_____

National Association of Physical Plant Administrators of Universities and Colleges

President: Carl M. F. Peterson, Massachusetts Institute of Technology; secretary-treasurer: John H. Sweitzer, Earlham College, Richmond, Ind.

Convention: July 3-7, Oregon State College, Corvallis.

American College Public Relations Association

President: Lyle M. Nelson, University of Michigan; executive director: Frank L. Ashmore, 1735 Massachusetts Ave., Washington 6, D.C.

National Association of Educational Buyers

President: Bruce Partridge, University of Delaware; executive secretary: Bert C. Ahrens, 1461 Franklin Ave., Garden City, N.Y.

Convention: May 3-5, Chase Hotel, St. Louis.

National Association of College Stores

President: C. Paul Irvine, Oregon State College Cooperative Association, Corvallis, Ore.; general manager: Russell Reynolds, 55 East College Street, Oberlin, Ohio.

APSCO SHARPENERS BELONG IN YOUR SCHOOL!

The Apsco "CHICAGO" Pencil Sharpener

The CHICAGO, one of the most school-specified models in the Apsco line of pencil sharpeners, now features the exclusive #145 super-strong base with integrally-cast ring gear. Strong, sturdy, and practically "student-proof," the CHICAGO gives added pencil life with each sharpening. The positive point stop, together with the long-life replaceable cutterhead, results in years of maintenance-free operation under the toughest student usage. Large-capacity, heavy-duty receptacle means less frequent emptying. Evaluate the Apsco CHICAGO for your next school order.

Specify Apsco products for YOUR school – there are none better! Write for complete Apsco catalog, free on request. Dept. 16-2

Apsco APSCO PRODUCTS, INC.
P.O. Box 840, Beverly Hills, California

National Federation of College and University Business Officers Associations

President: Charles H. Wheeler III, University of Richmond; secretary: Kenneth Dick, University of Idaho.

Canadian Association of University Business Officers

President: M. C. Tillotson, Queen's University; secretary-treasurer: D. S. Claringbold, treasurer, Hart House, University of Toronto.

Associations of College and University Business Officers

American Association

President: G. Cletus Birchette, Atlanta University; secretary: C. E. Prothro Jr., Tuskegee Institute.

Convention: May 4-6, Texas Southern University, Houston.

Central Association

President: Harlan Kirk, Michigan State University, East Lansing, Mich.; secretary-treasurer, James J. Ritterskamp Jr., Washington University, St. Louis.

Convention: April 30-May 2, Hotel Muehlbach, Kansas City, Mo.

Eastern Association

President: Richard D. Strathmeyer, University of Buffalo; secretary-treasurer: Kurt M. Hertzfeld, Boston University.

Convention: Dec. 3-5, The Warwick, Philadelphia.

Southern Association

President: C. L. Springfield, Southwestern at Memphis; secretary: Clarence Scheps, Tulane University.

Convention: April 23-25, Dinkler-Tutweiler Hotel, Birmingham, Ala.

Western Association

President: Harry E. Brakebill, San Francisco State College; secretary: Charles O. Pierpoint, University of Redlands.

Convention: April 30-May 3, Portland, Ore.

Association of College and University Housing Officers

President: Fred A. Schwendiman, Brigham Young University; secretary-treasurer: A. Thornton Edwards, Kansas State University.

Convention: July 30-Aug. 3, Columbia University.

Association of College Unions

President: Gerald T. Erdahl, N. C. State College, Raleigh, N.C.; secretary-treasurer: Edgar A. Whiting, Cornell University; editor of publication: Porter Butts, University of Wisconsin.

Convention: April 16-19, Broadmoor Hotel, Colorado Springs, Colo.

College and University Personnel Association

President: Charles T. Clark, University of Texas; executive secretary: Donald E. Dickason, University of Illinois. Permanent headquarters, 605 S. Goodwin Ave., Urbana, Ill.

American Alumni Council

President: George J. Cooke, Princeton University; executive director: Ernest T. Stewart, 1785 Massachusetts Ave., N.W., Washington 6, D.C.

Roy Saker, with West for 7 years, today calls on the MacArthur School and Taft J.H.S. in Lake County, Indiana.

A man like

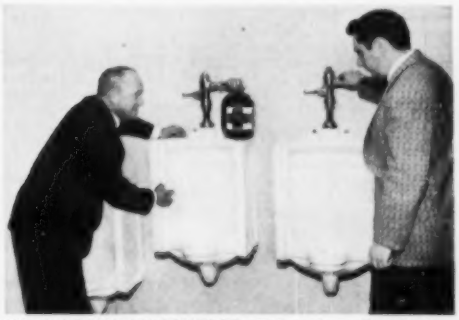
Roy Saker, Jr.

can be your authority on school sanitation and maintenance problems

He is one of West Chemical's 457 school experts who offer you free personalized technical service

REDUCES FLOOR MAINTENANCE. Wax-less Tredcote® gets endorsement of MacArthur School Principal Lloyd Smith (right) as he examines no-slip, scuff-resistant surface. Saker reminds Janitor G. H. Jones that Tredcote requires no buffing, no stripping — holds shine even in heavy traffic zones, with no more than damp-mop touch ups.

ELIMINATES DUST AND GERMS. Super Westone® keeps gym floor in shape with dustless sweeping. Saker tells Coach Fauver how it arrests dust, removes bacteria, protects floor from discoloration.



KILLS GERMS ON CONTACT. Saker shows Taft Principal Smead how hospital-proved Wescodyne® cleans as it disinfects, gives low-cost protection against athlete's foot, polio, strep and staph infections. After washrooms, lockers and classrooms get a going over.

A technical expert like Roy Saker can analyze your requirements, help you get more for your maintenance budget. He's experienced at solving problems with an efficient West Maintenance Program. He works with your staff — gives free instruction, free supervision and free periodic follow-up.

He can guarantee improved appearance and higher sanitation standards . . . and show you how to *reduce* maintenance costs! For full information write your nearest West office or West Chemical Products, Inc., 42-16 West St., Long Island City 1, N. Y. In Canada, 5621-23 Casgrain Ave., Montreal.

America's foremost specialists in school sanitation and maintenance

WEST CHEMICAL PRODUCTS INC.

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TERMS: 30¢ a word—minimum charge of $6.00 regardless of discounts. For "key" number replies add five words. Ten per cent discount for two or more insertions (after the first insertion) without changes of copy. Forms close 8th of month preceding date of issue. College and University Business, 919 N. Michigan Ave., Chicago 11, Ill.

POSITIONS WANTED

Bookstore Manager — Ten years experience in university bookstore management; purchasing; university press; counseling; preparation of budgets; public relations; age 47; married. Write to Box CW 574 COLLEGE AND UNIVERSITY BUSINESS.

Bookstore Manager — Presently employed; fourteen years experience college bookstore management; extra-curricular activities supervision, campus banking, post office; B.S. Degree. Write to Box CW 581, COLLEGE AND UNIVERSITY BUSINESS.

Buildings and Grounds — Desire position with this department; years of experience in all phases of new construction, maintenance & repair; public relations and coordination with contractors, architect and engineer; progress and material checking against requisitions. Write to Box CW 587, COLLEGE AND UNIVERSITY BUSINESS

Business Manager — Controller — University administrative and financial experience; presently chief accountant at university with 12,000 enrollment; responsible for accounting records, financial reports, receipts and disbursements; seeks challenging opportunity to serve with a progressive institution. Write to Box CW 591, COLLEGE AND UNIVERSITY BUSINESS.

Business Manager or Assistant — M.A. in College Business Management; 3 years experience; accounting background; age 32; married, two children; need to relocate in west or south due to allergy. Write to Box CW 584, COLLEGE AND UNIVERSITY BUSINESS.

Business Manager or Director of Auxiliary Services — Master's Degree; 12 years university experience, last eight at executive level; background includes plant management, personnel, budgets, food service and counseling; prefer western location. Write to Box CW 549, COLLEGE AND UNIVERSITY BUSINESS.

Director — Campus union, domitories, student activities; ten years planning-management experience in new and established stateside, overseas university operations; married; 28; Master's Degree; desire stateside location. Write to Box CW 592, COLLEGE AND UNIVERSITY BUSINESS.

Director of Auxiliary Enterprises — Understands specific executive responsibilities of planning, relationships with people, representation of institution, setting of organization tone, coordinating, and setting professional and technical standards; Bachelor's Degree, Hotel Administration; twelve years experience university food service; July or August availability. Write to Box CW 588, COLLEGE AND UNIVERSITY BUSINESS

Director of Services — Ten years experience university level background includes counseling, comptrollership; fund raising and public relations. Write to Box CW 563, COLLEGE AND UNIVERSITY BUSINESS.

Executive Housekeeper, or Dormitory Director and Hostess — College and business experience; prefer eastern or southern location. Write to Box CW 589, COLLEGE AND UNIVERSITY BUSINESS

Food Director — Experienced in executive responsibilities for food preparation, service, menu planning and purchasing; background of commercial and university food services; degree. Write to Box CW 586, COLLEGE AND UNIVERSITY BUSINESS.

Food Director — Masters in Institutional Management; experience — 6 years teaching, 3-7-5-8 years administrative food service in college and inplant feeding; age 47, single; available July; prefer central or southwestern location. Write to Box CW 590, COLLEGE AND UNIVERSITY BUSINESS.

Purchasing Agent — 10 years experience as industrial executive in purchasing, accounting and sales, currently sales manager and assistant secretary; married; college graduate; age 39. Write to Box CW 580, COLLEGE AND UNIVERSITY BUSINESS.

Storekeeper — College experience; family man; purchasing and experience in business administration; high school graduate w/college; will consider $6000 per income. Write to Box CW 583, COLLEGE AND UNIVERSITY BUSINESS.

University Press Director — Age 47; ten years experience in all phases of publishing; also qualified as administrative assistant to the president; can prepare budgets, raise funds and handle public relations. Write to Box CW 582, COLLEGE AND UNIVERSITY BUSINESS.

Vice Pres. for Non-Academic Affairs — Presently vice president of outstanding liberal arts college; in charge of business, development, and public relations; ten years experience in college administration; seek similar position in western state. Write to Box CW 585, COLLEGE AND UNIVERSITY BUSINESS.

POSITIONS OPEN

Assistant Comptroller — Must be capable of assuming responsibility for accounting records in a large private midwestern university. Send complete resumé including education, experience, and salary requirement to Box CO 387, COLLEGE AND UNIVERSITY BUSINESS.

Assistant to Treasurer and Business Manager — Send full application to Office of the Treasurer, ALLEGHENY COLLEGE, Meadville, Pennsylvania.

Bookstore Manager — Excellent opportunity for a well-trained man with some supervisory experience in bookstore management or in a similar merchandizing operation to become manager of a bookstore at a large eastern state university; liberal employee benefits; salary flexible depending upon experience. Send resumé indicating age, education, experience, and salary requirements to Box CO 385, COLLEGE AND UNIVERSITY BUSINESS.

Bookstore Manager — Large, private, urban, midwestern university with multiple bookstore operation, both counter and self service; needs top-level man with management and supervisory experience in buying, selling, and financial and inventory controls in bookstore and satellite operations; all replies confidential. Submit salary requirements and complete resumé of experience, education, and personal data to Box CO 390, COLLEGE AND UNIVERSITY BUSINESS.

Business Manager — For small, privately owned college, founded in 1927; located in central Florida; candidate should have ability in preparing and controlling budget, purchasing, bookkeeping, and supervision of grounds and buildings maintenance staff. Write to Box CO 389, COLLEGE AND UNIVERSITY BUSINESS

College Food Service Director — For leading state college union; faculty status; excellent working conditions and vacation periods; beginning wage from $7,100; want personable and enthusiastic man or woman to direct all phases of food operation; position to open summer 1961. Write to Box CO 382, COLLEGE AND UNIVERSITY BUSINESS.

Director of Auxiliary Enterprises — Prefer man experienced in bookstore operations with knowledge of food service and dormitories for private university in the midwest. Send resumé with education, experience, and salary requirement to Box CO 388, COLLEGE AND UNIVERSITY BUSINESS.

(Continued on Page 87)

COLLEGE AND UNIVERSITY BUSINESS

919 N. Michigan Avenue, Chicago 11, Ill.

classified advertising

POSITIONS OPEN

(Continued From Page 86)

Evening Supervisor of Operations — (1) male for private college in New York City; ability to supervise, manage, analyze problems, prepare solutions and to cooperatively work diligently towards objectives important; opportunity for growth and graduate study; interest in school administration, personnel and/or plant helpful. Send resumé to RICHARD F. TONIGAN, 525 West 120 Street, New York 27, New York.

Food Service Director — A leading large midwestern university is seeking the best man in the country to assume complete responsibility for its multiple food service programs; proven ability in food service administration will assure highest salary. Direct inquiries to Box CO 384, COLLEGE AND UNIVERSITY BUSINESS.

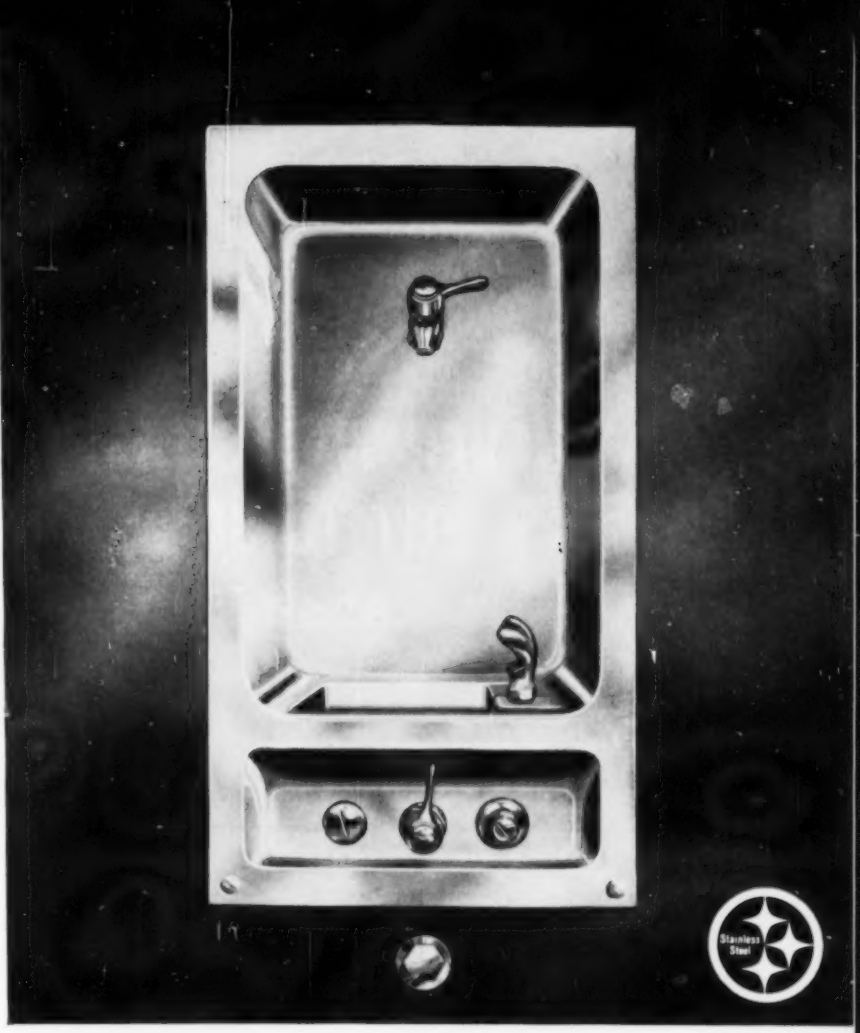
Food Service Manager — For 400 capacity dining hall, medium size southwestern college; prefer man for manager, however women applicants acceptable; dining hall gross income approximately $150,000 per annum. Write to Box CO 386, COLLEGE AND UNIVERSITY BUSINESS.

Food Service Supervisor — To supervise 40 to 50 employees in a new food service unit with completely modern equipment, beginning September 1, 1961; paid vacation, sick leave, group life insurance, group rates for Blue Cross-Blue Shield coverage, non-contributory pension plan, workman's compensation, meals furnished while on duty, uniforms laundered by university; forty-hour work week; excellent possibility for year-round employment; excellent working conditions in pleasant university atmosphere on main line of Pennsylvania Railroad halfway between New York and Washington; must have college Degree in Institutional or Restaurant Management. Contact Mr. Donald G. Bickert, Director of Food Service, UNIVERSITY OF DELAWARE, Newark, Delaware.

Food Service Supervisors — Excellent salaries and opportunities at a large, expanding eastern state university for well qualified, experienced supervisory personnel in the field of food service operations; three new dining halls being constructed; buyer, quality control and dining hall managerial positions. Send resumé to Box CO 383, COLLEGE AND UNIVERSITY BUSINESS.

Woman Supervisor — (1) to assist in managing educational plant in New York City; desire pleasant person with potential to supervise, to study and to propose creative solutions to plant problems involving furniture, decorating, services to cleaners and special activities and other operations; opportunity for rewarding career and graduate study; experience not required. Send resumé to RICHARD F. TONIGAN, 525 West 120 Street, New York 27, New York.

University Food Supervisors — Large private eastern university has openings for experienced residence halls dining room supervisors and cafeteria supervisors; male or female; salary open; many fringe benefits including free tuition for employees and families. Send resumé to Box CO 380, COLLEGE AND UNIVERSITY BUSINESS.

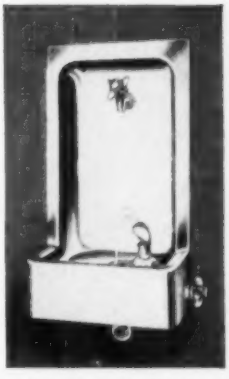


The gleaming beauty of stainless steel provides the modern touch

Stainless Steel, the modern metal of the sixties, is used in this smartly-styled recess fountain by Halsey Taylor.

It is highly favored for installations in foyers, corridors and offices, providing the lifetime beauty and service of stainless steel and the dependability and health-safety of Halsey Taylor design.

The Halsey W. Taylor Co., Warren, Ohio



Here is another Halsey Taylor Stainless Steel wall-type...a semi-recessed unit.

Halsey Taylor

Write for latest catalog, or see Sweet's or the Yellow Pages

THIS MARK OF LEADERSHIP IDENTIFIES THE MOST COMPLETE LINE OF MODERN DRINKING FIXTURES

*the *multi-purpose bed lounger costs less than half what you would expect*

Add up the advantages of multi-functions in small space . . . low initial cost and it's no wonder that school after school is fitting the Southern Cross Bed-Lounger into its budget. On a square footage basis or a per student basis, never before was so little space put to so much use at so little cost. Long manufacturing experience since 1883 and completely integrated facilities under one roof give you high quality at lower prices. Write for free descriptive folder today. Available on contract to members of the Educational and Institutional Cooperative Service, Inc.,1461 Franklin Avenue, Garden City, L. I., New York.

- Also available in 81" length
- Non-sag Long Life Edge
- "Easy Chair" Seating Comfort
- Built-Ins can qualify for HHFA Government Loans
- Wide Choice Styles in regular and extra length

Easily pulls out for sleeping

SOUTHERN CROSS DORMITORY SLEEP PRODUCTS

Contract Division, Southern Spring Bed Company, 290 Hunter Street S.E., Atlanta 12, Ga., MU. 8-2154

**Patent applied for*

Edited by Bessie Covert

WHAT'S NEW

TO HELP you get more information quickly on the new products described in this section, we have provided the postage paid card on page 107. Circle the key numbers on the card which correspond with the numbers at the close of each descriptive item in which you are interested. COLLEGE and UNIVERSITY BUSINESS will send your requests to the manufacturers. If you wish other product information, just write us and we shall make every effort to supply it.

Language Laboratory Console Provides Comfort and Convenience

Maximum teacher comfort and convenience is provided with a compact, one-piece desk-type Console for language laboratories, Model LC 252, that has space for controls, amplification equipment and master sources. The unit can contain up to four tape decks and a record player, along with switch panels for communication with up to 45 students, and its design allows the teacher to be seated without obstructing his view of the class. **Rheem Califone Corp., 1020 N. La Brea Ave., Hollywood 38, Calif.**

For more details circle #95 on mailing card.

Airkem Gold Destroys "Difficult" Odors

Formulated with ingredients particularly effective against the difficult odors of cooking, paint and the like, Airkem Gold does not perfume the air, desensitize the sense of smell or leave an objectionable end odor. It adds an air freshened effect and is available in liquid or solid form. **Airkem, Inc., 241 E. 44th St., New York 17.**

For more details circle #96 on mailing card.

Contemporary Metal Furniture Line Is Flexible and Attractive

New decorator colors and flexibility of design that permits custom arrangements are built into the All-Steel 4000 line of

contemporary metal furniture containing 75 basic units with thousands of possible variations for all office and office practice needs. Three years of research and development have gone into the line, which includes executive, secretarial and clerical desks, executive and clerical L-units, credenzas, bookcases, storage units and work and conference tables. **All-Steel Equipment, Inc., Aurora, Ill.**

For more details circle #97 on mailing card.

Bassick "No-Roc" Glide Automatically Levels Equipment

Quick, automatic adjustment to uneven floor surfaces is provided with the new Bassick "No-Roc" self-leveling furniture glide. It is designed to balance equipment having four or more legs and employs a new type fluid whose physical properties do not change with age or temperature. The fully sealed glide automatically seeks its own level, stabilizing equipment. **Bassick Co., 3045 Fairfield Ave., Bridgeport 5, Conn.**

For more details circle #98 on mailing card.

Hot and Cold Foods From Same Vendor

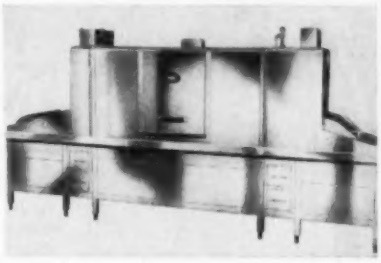
A new automatic vending machine which can sell foods and merchandise in a temperature range of around zero to 155

degrees F. is introduced by Vendo. Little more than half the size of a stenographer's desk, the Visi-Vend is six feet five inches high. It offers up to ten selections of items, hot or cold, each visible through a glass serving door. Six models of the vendor include the dual-control model for frozen and hot foods, models for all-cold, all-hot and all-frozen items, as well as room temperature items from a model without thermal controls. **The Vendo Co., 7400 E. 12th St., Kansas City 26, Mo.**

For more details circle #99 on mailing card.

Model FT-13 Dishwashing Machine Is Four-Stage Unit

Only 13 feet long, the new Model FT-13 will power scrape, wash, rinse and final rinse dishes with speed and efficiency. The new six-foot center section for washing and rinsing operations is specially designed for maximum dishwashing performance in minimum kitchen space. The compact model is recommended for use in kitchens serving up to 700 persons per meal. It consists of a 3½-foot loading and



recirculating dish scraping unit, a six-foot center unit for the power wash and double rinsing or sanitizing operations, and a 3½-foot drying and unloading extension. **Hobart Mfg. Co., Troy, Ohio.**

For more details circle #100 on mailing card.

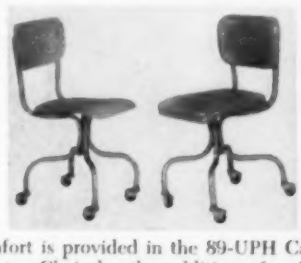
Instruction in Transistor Technics With Compact Training Device

Developed for instructing technical students in the use of transistors, a new training device enables them to learn transistor technics by working directly with solid state components and a variety of circuit diagrams. The compact, 4½-pound unit uses self-contained batteries as a power source and a dozen separate circuits are pre-wired on its perforated "jackfield." **Radio Corp. of America, Camden 2, N.J.**

For more details circle #101 on mailing card.

Two Comfortable Teacher's Chairs Introduced by American Desk

Design and comfort are combined in the two new teacher's chairs introduced by American Desk. The 89 Series Caster Cluster Chair, comfortable and form fitting, is available in five colors and is equipped with 16-gauge tubular steel legs, two-inch ball-bearing rubber wheel casters, and durable scroll seat and back of five-ply birch or maple veneer. Maximum



comfort is provided in the 89-UPH Caster Cluster Chair by the addition of a foam rubber seat and back upholstered in leatherette. **American Desk Mfg. Co., Temple, Tex.**

For more details circle #102 on mailing card.

No dirty wheels or knobs or tools to handle. Just lift the seat to the desired height. The Ajustrite patented adjusting mechanism is the reason hundreds of thousands of Ajustrite Chairs and Stools are in service today. It's the oldest, the simplest, the fastest. And the most trouble-free—*that's why we guarantee it for 10 years!*

30-DAY FREE TRIAL No obligation. Prove to yourself the Ajustrite advantages in utility, comfort and economy.

32 Models for Factories • Schools • Laboratories • Hospitals • Offices


Laboratory RPC-2230


Classroom CPC-1520


Vocational Shop S-1827


Pat. Nos. 2364191-2710048
Other Patents Pending

This is the famous Ajustrite adjustment mechanism

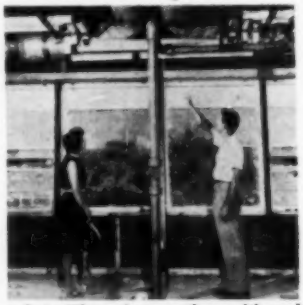
It works on the same principle as the bicycle coaster brake. When pressure is applied it grips. The thirteen balls in the wedge grip the steel rod which passes through the center. From its lowest position the seat is raised to the height desired. To lower seat, first raise to extreme height, where it automatically releases. Then lower all the way down to re-engage locking mechanism.

AJUSTRITE CHAIRS and STOOLS

AJUSTO EQUIPMENT COMPANY
Bowling Green, Ohio

Carrier System
Cuts Heating-Ventilating Costs

Operating on the principle of high velocity induction, the new Carrier heating and ventilating system reduces installation costs. It is similar to the forced warm air systems commonly found in homes, but more air is circulated and each outlet contains a coil for reheating room air induced



through it. The reheat coil acts like a baseboard convector at night and during weekends, reducing operating costs by eliminating the need to send warm air from the central system during these periods. The system can be installed originally for heating only, with the cooling apparatus connected to the central system when desired, without disrupting school activities. **Carrier Air Conditioning Co., Syracuse 1, N.Y.**

For more details circle #103 on mailing card.

Audiometric Room
Facilitates Hearing Tests

Designed to be assembled in a few hours without special tools, the new Audiometric Room for hearing tests has been under development for a year. It is constructed to assure a true test of hearing even when installed in a fairly noisy area. The room is available in four models. **Koppers Co., Inc., Metal Products Div., 200 Scott St., Baltimore, Md.**

For more details circle #104 on mailing card.

21-Inch Convertamatic
Offers Increased Maneuverability

Designed for cleaning partially obstructed and high traffic areas, the new 21-inch Convertamatic offers increased

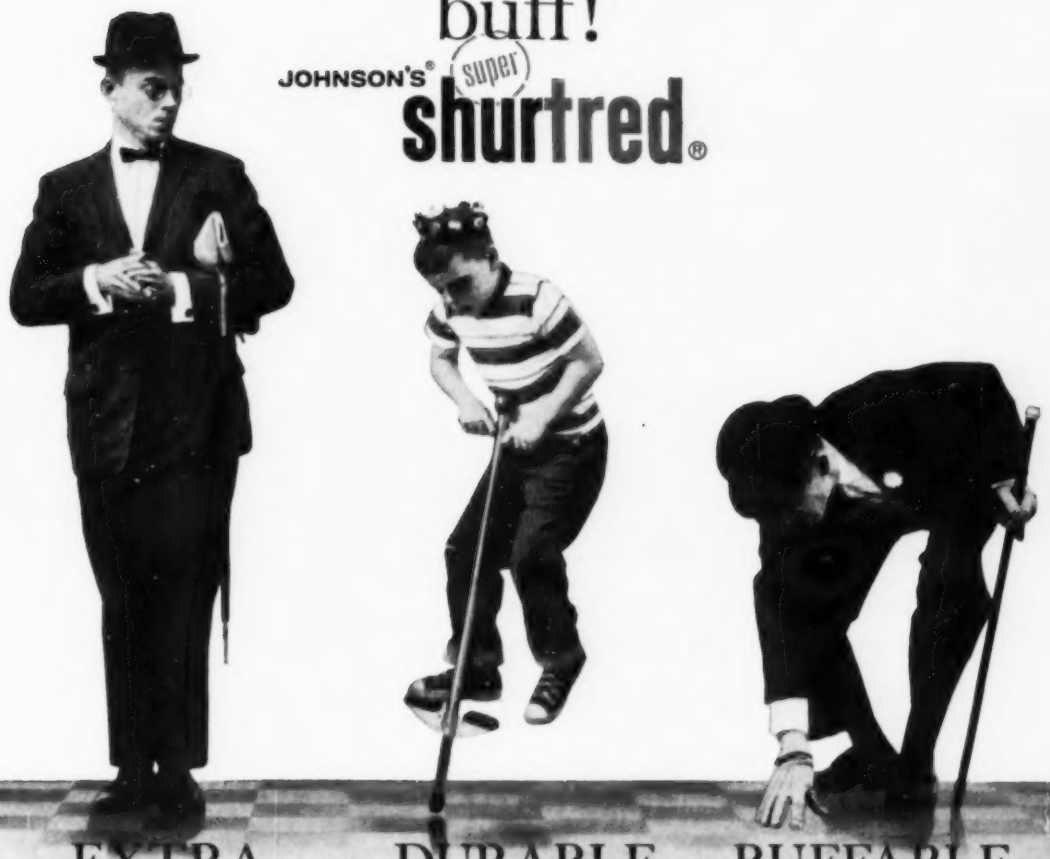
maneuverability and low cost. Laying the cleaning solution in one pass over the floor, the machine scrubs a 21-inch swath, vacuums the dirty solution and finally dries the floor. The unit, with a battery powered motor, can also be used for buffing and vacuuming. **Advance Floor Machine Co., 126 Industrial Center, Spring Park, Minn.**

For more details circle #105 on mailing card.

(Continued on page 92)

new polymer finish you can buff!

JOHNSON'S® (super) shurtred®



EXTRA SAFETY

New polymer formula makes floors safer to walk on. No other product especially designed for safety looks as good, walks as well, and saves you so much money. Listed by Underwriters' Laboratories, Inc.

DURABLE

Your floor *stays* good-looking even under the roughest kind of traffic. New Super SHUR-TRED resists scuffing and rubber marks—stands up under the worst kind of punishment. You save work and money, because Super SHUR-TRED requires so little maintenance.

BUFFABLE

Now floors can be buffed after heavy traffic to restore good looks in trouble spots like entrances, traffic lanes. SHUR-TRED buffs to a like-new shine, yet never takes the kind of work that other products require.

Call your local Johnson's Wax Distributor today. For his name, write to S. C. Johnson & Son, Inc., Dept. CUB2, Racine, Wis.

SHUR-TRED is a product of JOHNSON'S WAX SERVICE PRODUCTS DIVISION

#650 Typewriter Desk for College Level Instruction

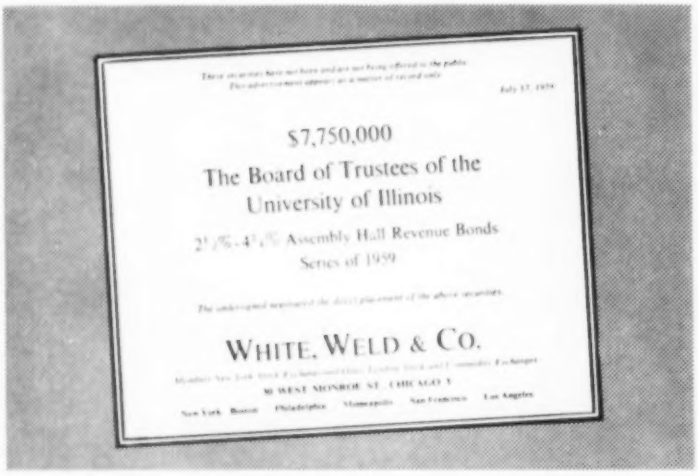
Developed especially to meet the requirements of all Business Education instruction at the college level, the new #650 College Typewriter Desk has a large three-compartment storage unit to accommodate books and supplies. The 42 by 20-inch desk top gives ample area for copy work, instruction books and dictating machine and the Formica top facilitates maintenance. The 18-inch "Automatic" typing well will accommodate electric or manual machines and elevates from 25 to 30 inches. **Desks of America, Inc., P.O. Box 6183, Bridgeport 6, Conn.**

For more details circle #106 on mailing card.

Mason & Hamlin Studio Piano Designed Especially for Teaching

Several features which make it particularly applicable for classroom and auditorium use are built into the new vertical Mason & Hamlin Music Hall Piano. The overall height of 42 inches gives full visibility of class or chorus when the instructor plays and directs. Large scores and teaching materials can be accommodated as the entire front panel serves as a music desk. Heavy ball bearing casters permit the Music Hall Piano to be easily positioned. **Mason & Hamlin Co., Div. of Aeolian American Corp., East Rochester, N.Y.**

For more details circle #107 on mailing card.



A Great University . . . with a Pressing Problem . . . and How It Was Solved

In common with expanding educational institutions everywhere, the University of Illinois in 1959 urgently needed assembly hall facilities. The need was pressing: a prompt solution could have great and far-reaching advantages. The program which we developed was approved by the Board because it met the limitations —in time and overall cost—that had been previously determined. Our firm was pleased to handle this financing program for the University and we believe that our experience gained in some 30 college revenue bond projects would prove most helpful to those schools planning improvements or expansion in the early 1960's. Please contact us in Chicago, or at any of our other offices, concerning your program.

MUNICIPAL BOND DEPARTMENT

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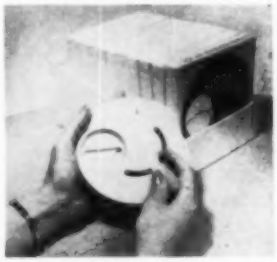
Ariens Snow Thrower Throws Snow up to 25 Feet

The Sno-Thro, a heavy duty self-propelled rotary snow thrower, has a recoil-starting 4½ h.p. "winterized" engine, two forward speeds and reverse, gear and chain drive, convenient operating controls and pneumatic tires for positive traction. Specially designed blades throw the snow up to 25 feet in any direction. **Ariens Co., 109 Calumet St., Brillion, Wis.**

For more details circle #108 on mailing card.

Flash-X Tachistoscope For Individual Use

A student can practice seeing skills on his own or learn new visual material with the Flash-X, a tachistoscope which can be used individually or in teams. Discs easily rotated for successive material are inserted into the durable, all-metal unit. Training discs with 40 exposures are available in 18 graded sets, as well as blank discs for special materials. **Educational Developmental Laboratories, 75 Prospect St., Huntington, N.Y.**



For more details circle #109 on mailing card.

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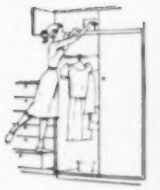


"student proof"

these Dorm Line built-in wardrobes

Student high spirits meet their match in these sturdy, steel-framed Dorm Line wardrobes. They're built especially to resist rough usage. The sliding doors withstand 1500-lb. strength tests—guide channels will not twist or bend; screws will not pull out; doors can't get off the tracks when bumped or jarred.

Dorm Line built-in wardrobes safeguard your investment in other ways, too. They are easier and less expensive to install because they come as complete units that fit room plans. They stay new looking—their faces are birch or natural Novoply, sealed and lacquered. You can have them in various finishes...or painted in a choice of colors.

In addition to wardrobes, Simmons Dorm Line includes desks, bookshelves, chairs, chests and beds—all handsomely styled and built for carefree maintenance. Write us for literature... and see Dorm Line furniture soon.

SIMMONS COMPANY
CONTRACT DIVISION

Merchandise Mart · Chicago 54, Illinois

DISPLAY ROOMS: Chicago · New York · Atlanta · Columbus

Dallas · San Francisco · Los Angeles

For additional information: use postcard facing back cover.

Angled Pot Brush Has Stiff Nylon Bristles

A new pressure-point handle angled for full use of the brush face while providing

increased leverage and easier handling is featured in the Don "Dura Brush." The stiff crimped "Tynex" nylon bristles are extra thick for maximum wear, bacteria resistant and heat resistant up to 400 degrees F. The lightweight handle is of plastic and the brush is all white. **Edward Don & Co., 2201 S. LaSalle, Chicago 16.**

For more details circle #110 on mailing card.

Grip-Lock Corners Permit Flexible Incineration

United States Incinerator's flexible new models with grip-lock corners are readily disassembled, permitting a unit to be moved and re-installed in another building when it no longer satisfies the needs at its original installation. The expendable corners also allow the incinerator to expand or contract, preventing it from blowing apart in case of an explosion or high temperature fire. **United States Incinerator Corp., 755 Boylston St., Boston 16, Mass.**

For more details circle #111 on mailing card.

Salt and Sand Sprayed by Power Spreader

A path from four to twelve feet wide can be sprayed with salt and sand for a distance of 1050 feet in one loading of the new Gravely Power Spreader. The interchangeable attachment for the Gravely Tractor is quickly secured or removed by simply adjusting four bolts. **Gravely Tractors, Inc., Dunbar, W. Va.**

For more details circle #112 on mailing card.

Polyethylene Waste Liners Speed Lunchroom Cleanup

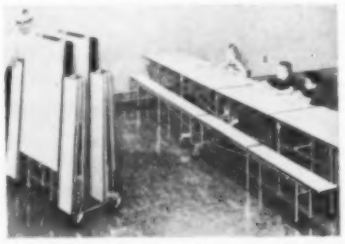
Designed especially for use in large waste receptacles in dining rooms and

cafeterias, the new Polyethylene Drum Liners speed cleanup with improved sanitation. The plastic bag, folded over the outside top of the waste can, is drawn up and tied for removal, closing in odors and preventing spilling of refuse. Time is saved in removing waste and in maintenance as there is no rust problem from spilled or emptied liquids. **Central States Paper & Bag Co., Inc., 5221 Natural Bridge, St. Louis 13, Mo.**

For more details circle #113 on mailing card.

Two-Fol Tables For Multi-Purpose Rooms

A quick and economical way to convert classrooms to a variety of uses is offered with the Two-Fol folding table and bench set, a 16-foot unit that seats 24 and folds into a compact 63-inch high unit for storage. Made with a self-supporting and



free-standing steel undercarriage and a durable Formica top in a wide choice of colors and patterns, the set features steel U channels which support the top panels and to which all legs are attached, balanced springs to assist in folding and unfolding operations, and ball-bearing caster wheels four inches in diameter which support the center undercarriage and on which the unit is wheeled. **Rol-Fol Table, Inc., 8467 Melrose Pl., Los Angeles 46, Calif.**

For more details circle #114 on mailing card.

(Continued on page 96)

HERRICK

STAINLESS STEEL REFRIGERATORS, FREEZERS AND WALK-IN COOLERS

Whatever your needs, HERRICK has the answer!

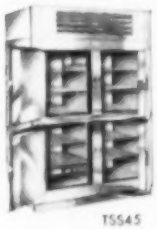
NEW WELDED STEEL FRAME . . . STRONGEST IN THE INDUSTRY

UNDERCOATING ON INSIDE OF CABINET SHELL, HIGHLY-EFFECTIVE VAPOR SEAL

MOST REACH-INS AVAILABLE WITH PORCELAIN ENAMEL INTERIORS

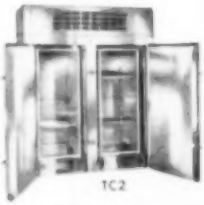
MOST MODELS AVAILABLE AS DOUBLE-FRONT PASS-THRU

MOST MODELS AVAILABLE FOR REMOTE INSTALLATION



T5S45

T5S67DT



TC2

88S5

REACH-IN REFRIGERATORS AND FREEZERS

Traditional HERRICK quality . . . now with new built-in durability. Welded steel frame securely reinforced . . . will not warp. Undercoating also acts as rust inhibitor. 2, 4, 6 and 8-door models.

DUAL-TEMP AND COLD-HOT REFRIGERATORS

Dual-Temp provides freezer section and normal refrigerated section. Cold-Hot provides normal refrigerated section and insulated heated section. Lifetime stainless steel. 4, 6 and 8-door models.

TRAY-CART REFRIGERATORS

Foods can be prepared where most convenient, placed on trays and wheeled into the refrigerator for chilling. Then wheeled out again when needed. 2, 3 and 4-door models. Built to accommodate standard carts (not included).

WALK-IN COOLERS

Ideal for bulk storage of foods. Available in stainless steel, as shown, steel baked enamel, or marine-type plywood. Also offered as freezers. Single or multiple compartments.

Write Dept. C for name of nearest HERRICK Supplier

SEE OUR CATALOG IN SWEET'S

HERRICK REFRIGERATOR COMPANY
Waterloo, Iowa

(You can lease it for a few cents an acre under the new Toro Fleet Finance Plan. Write Toro Manufacturing Corp. for complete facts!)

mows 8 acres a day!

HIGH CAPACITY combined with handling ease and stamina—that's the Toro Starlawn* 30 And that adds up to dependable, low-cost service.

The Starlawn 30 is a ruggedly-built, precision mowing machine that features: an exclusive hi-low cutting range for maximum cutting efficiency at all heights of cut—from 7/16 in. to 3¼ in. (with optional adjusting caster wheel) . . . separate traction and reel controls . . . a double-edge chrome steel bedknife with stainless steel adjusting screws . . . welded steel chassis and frames . . . optional riding sulky . . . a 3 hp, 4 cycle engine—every feature you'd ever want in a big reel mower!

Like a demonstration? Let your nearby Toro distributor demonstrate this time-proved Toro favorite on your own grounds. He's listed in the classified section of the phone book under "Lawn Mowers."

**A registered trademark of Toro Mfg. Corp.*

TORO

TORO MANUFACTURING CORP.
3011 SNELLING AVE., MINNEAPOLIS 6, MINN.

You Can Do It FASTER with BAKER SCAFFOLDS

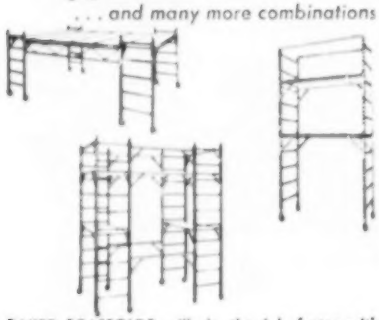
IN SINGLE UNITS

You Can Do This!

IN MULTIPLE UNITS

You Can Do This

. . . and many more combinations



BAKER SCAFFOLDS will do the job faster with greater safety. Check your telephone directory for the name of your local BAKER SCAFFOLD distributor or write to the address below.

LISTED UNDER RE-EXAMINATION SERVICE UNDERWRITERS' LABORATORIES, INC.

BAKER SCAFFOLDS

DESIGNED FOR PORTABILITY • BUILT FOR DURABILITY

Write for Baker Scaffold Bulletin # 611

BAKER-ROOS, INC.
P. O. Box 892, Indianapolis 6, Indiana

Gentlemen: Send the folder described on Baker Scaffolds without obligation.

Name_____

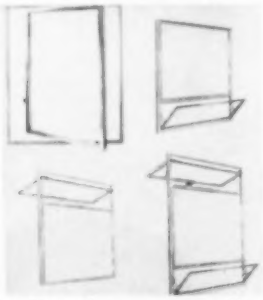
Organization_____

Address_____

City_____ State_____

DISTRIBUTORS IN PRINCIPAL CITIES

Vertically Pivoted Windows for Air Conditioned Buildings



Series 55-A aluminum vertically pivoted windows, with full 360-degree rotation, are introduced by Truscon Division of Republic Steel for use in air conditioned buildings. Windows are fitted with an automatic locking mechanism to hold them in the reverse position for easy cleaning. They can be used as self-contained units or vents can be added. The design permits accommodation of a down-and-out transom, and up-and-in hopper vent using the same outside pivoted frame section around the entire unit, or both. **Republic Steel Corp., 1315 Albert St., Youngstown 1, Ohio.**

For more details circle #115 on mailing card.

Drawing Board and Drawer Cabinets In No. 1340 Drawing Table

Ample storage space for seven students is provided in the new No. 1340 Drawing Table. A drawing board cabinet with a book storage compartment and separators for storing seven boards is on one side and seven drawers with recessed handles are on the other. The table has a smooth steel top with a flange on the front to hold drawing boards in place. **Lyon Metal Products, Inc., 5 Plant Ave., Aurora, Ill.**

For more details circle #116 on mailing card.

Drafting and Drawing Tables Combine Beauty and Durability

Stacor's new "Woodmaster" line, comprised of five four-post drafting tables and six pedestal drawing table models, combines the beauty of selected hardwoods finished in dark oak with the durability of steel reinforcement for long service. The drafting tables have steel drawers equipped with nylon glides, a three-receptacle electrical outlet mounted in the frame, interlocking steel hinges for easy removal of the table top and other features. **Stacor Equipment Co., 285 Emmet St., Newark 5, N.J.**

For more details circle #117 on mailing card.

Geerpres Graduated Mop Bucket Takes Guesswork Out of Mixing

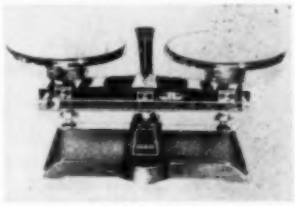
Cleaning solutions can be mixed correctly without the use of extra measuring cups and pails in the graduated mop buckets now added to the Geerpres line of floor mopping equipment. The buckets are ribbed for additional strength, with each rib a graduation that indicates capacity in gallons. Available in three sizes, the units are offered in a choice of single, twin or

"Convertible" twin models. **Geerpres Wringer, Inc., P.O. Box 658, Muskegon, Mich.**

For more details circle #118 on mailing card.

Metric and Avoirdupois Standards On Graduated Single Beam Balance

Model 1454, an addition to the Ohaus line of Harvard Trip Balances, is a single beam balance graduated in both metric and avoirdupois weighing standards. Self-aligning bearings, box-end beams, relief etched stainless steel beams, sliding type poise, and angle view dials and beams are features of the new balance which is available with six-inch Opal Glass



plates, or as Model 1454S with six-inch stainless steel plates. **Ohaus Scale Corp., 1050 Commerce Ave., Union, N.J.**

For more details circle #119 on mailing card.

Economy Priced Bulletin Board Offered in Takork

Featuring the Congoleum-Nairn E-Z Clean Cork composition wear layer and Clear Cushion Vinyl impregnated felt backing, Takork is an economy priced bulletin board cork available in gray, green or tan 49 inches wide. It can be used in framed cork bulletin boards, and for application to compressible backing boards and worn out bulletin boards. **Congoleum-Nairn Inc., 195 Belgrove, Kearny, N.J.**

For more details circle #120 on mailing card.

(Continued on page 98)

THONET INDUSTRIES INC.
One Park Ave., New York 16, N.Y.

SHOWROOMS: New York, Chicago, Detroit, Los Angeles, San Francisco, Dallas, Miami, Atlanta, Statesville, N. C., Paris, France.

THONET

SINCE 1830 MAKERS OF FURNITURE FOR PUBLIC USE

23 Years of Specialized Experience
and Service To The Educational Field
in the planning of

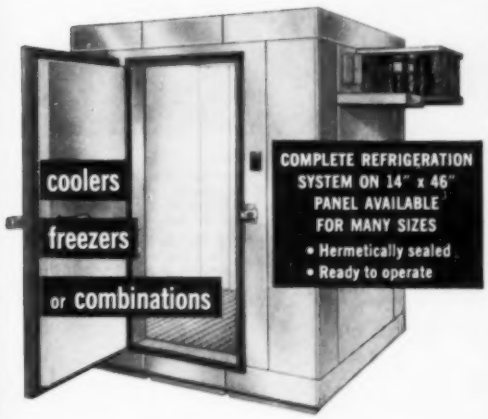
COMPREHENSIVE TUITION PAYMENT PROGRAMS

In association with privately-supported colleges in 40 states and the District of Columbia

TP

THE TUITION PLAN, INC.
One Park Avenue, New York 16, New York

Bally **walk-ins**
Aluminum or steel sectional construction

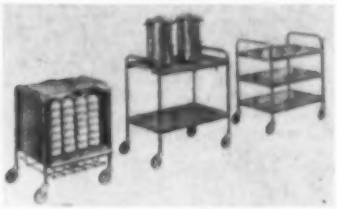


Sanitary! Strong! Efficient! You can assemble any size cooler, freezer or combination in any shape from standard sections. Add sections to increase size as your requirements grow. Easy to disassemble for relocation.

Bally Case and Cooler, Inc., Bally, Pa.
Get details—write Dept. CUB-2 for FREE book.

Coordinated Mobile Units Form Coffee Station

Three coordinated mobile units are combined for use in any desired area as a



Mobile Coffee Station. The entire station can be set up in the kitchen, wheeled to the point of service, then returned to the dishwashing area. Completely welded stainless steel forms the Cup Caddy with a capacity of 112 cups and 14 new type plastic trays with wire rack for used tray storage; the Urn Caddy with a non-splash long drainer and shelf for saucer storage, and the three-shelf Caddy which serves as a work area, utility truck or, with dish boxes, for bussing. All three units are equipped with Neoprene tires and ball bearing swivel casters for easy handling. **Caddy Corp. of America, Secaucus, N.J.**

For more details circle #121 on mailing card.

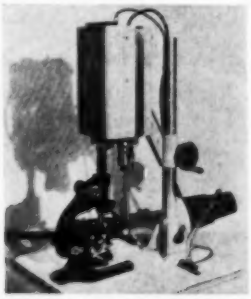
Foldoor Line Now in Peacock Fabric

A new vinyl-coated Peacock Fabric with an attractive, soft appearance is now offered in the Foldoor line of fabric-covered folding partitions. The low price range with style and durability are retained in the Peacock fabric which is available in 17 decorator colors. The tough vinyl surface withstands wear and abuse, is easily cleaned and resistant to fire, cold, fading or discoloration. **Holcomb & Hoke Mfg. Co., Inc., Dept. 1215, 1545 Van Buren St., Indianapolis 7, Ind.**

For more details circle #122 on mailing card.

TV Camera Mounting Stand for Close-Up Teaching

Designed for use with the low-priced, easily installed Argus Direct-Wire TV System for educational use that utilizes



conventional TV sets as receivers, the new Argus close-up mounting stand permits a direct-wire television camera to be used in conjunction with microscopes, close-up work, demonstrations or the scanning of a fixed area. The stand permits the vertical mounting of the TV camera without the need for prisms and mirrors. The close-up stand kit is made up of three separate packages, any of which can be ordered separately. **Argus Cameras, Inc., Dept. AV, 405 Fourth St., Ann Arbor, Mich.**

For more details circle #123 on mailing card.

Ice-Clearing Product Has Deep, Long Action

Improved power in snow-melting action is built into Ice-Foe, the non-toxic ice-melter for walks and drives. The new big particles give deep, long action over the complete range of winter temperatures. **Walton-March, 1592 Deerfield Rd., Highland Park, Ill.**

For more details circle #124 on mailing card.

Dearborn Paint Striper Has Wool Felt Roller Applicator

The Dearborn Paint Striper, an easily maneuvered, moderately priced one-man

machine, paints straight, circular and curved lines on gymnasium floors, tennis courts, parking lots, football fields and other areas. The friction-drive, noiseless unit requires no gasoline or electric motor

A lecture is only as good as it sounds—and how it sounds depends first and foremost on the microphone. In designing the superb new Unidyne III microphone, Shure incorporated every feature that experience shows modern institutions need.

IT FOCUSES ON THE VOICE. Unidirectional pick-up pattern (from the front only) suppresses random background noise. Students hear *you*, not shuffling papers, not footsteps, not street noises. Completely controls annoying feedback "squeal."

UNPRECEDENTED VERSATILITY. Unobtrusive size, light weight, instant change from stand to hand, faithful response, extraordinarily rugged design, simplicity and utter reliability combine to make the Shure Unidyne III the most practical institutional microphone ever created.

SPECIAL LANGUAGE LABORATORY MODEL. Model 544—Highly and authoritatively recommended for master microphone in language lab. (Shure also makes a lower cost Model "425" "student-proof" microphone for use throughout language laboratory systems.)

THIS FREE BOOKLET WILL HELP YOUR LECTURERS. Improves their microphone techniques . . . helps solve common public address system problems, too. A basic guide to mastering microphone technique. Invaluable guide to the correct selection of microphones for improving public address systems.

write on your letterhead:

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222 Hartrey Avenue, Evanston, Illinois

UNIDYNE III by SHURE

MANUFACTURERS OF THE WORLD FAMOUS UNIDYNE MICROPHONE — THE MOST REQUESTED MICROPHONE AMONG PROFESSIONAL SPEAKERS

and paints with a wool felt applicator roller. Constructed of aluminum and steel, the 35-pound paint striper is readily dismantled for equipment changes and movement between work locations, and is available with interchangeable optional equipment, including various width rollers. **R. E. Muncey, Inc., P.O. Box 387, Birmingham, Mich.**

For more details circle #125 on mailing card.

Greater Menu Variety With Campbell Counter Kitchen

The new Campbell Counter Kitchen offers a wide variety of soups and other hot foods, and provides the additional

benefits of uniformity of flavor and quality, savings in time and labor, and elimination of waste or carry-over. Designated the "E-5," the 18½ by 29¾-inch unit features an all stainless steel base; chrome-plated front control panel; two automatic electric timers, and automatic warning signal. **Campbell Soup Co., 375 Memorial Ave., Camden, N.J.**

For more details circle #126 on mailing card.

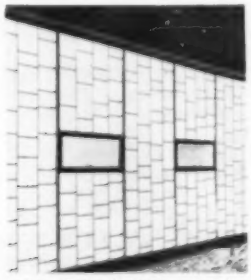
Zeal Combination Concentrate Is Safe For Hands

Formulated specifically for institutional use, Zeal is a new combination cleaner-germicide-sanitizer-deodorizer for cleaning floors, walls and woodwork and for general cleaning. When used as recommended, the new product is harmless to skin and safe on paint and other surfaces. In a heavier dilution it may be used as a wax stripper. **Turco Products, Inc., 24600 Main St., Wilmington, Calif.**

For more details circle #127 on mailing card.

Kalwall's Random-Grid Panel Permits Design Flexibility

An overall random effect is achieved with Random-Grid Panel, a design addi-

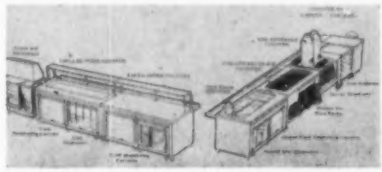


tion to the Kalwall line of plastic and aluminum translucent wall panels, by varying the distance between the mechanically interlocked aluminum I-beam extrusions which form the core of the panel. High-tensile-strength fiberglass reinforced polyester sheets are permanently bonded to the core to form a lightweight, structurally strong panel. A wide variety of color faces is available, and colored inserts may be used in the grid openings for flexibility of design. **Kalwall Corp., 43 Union St., Manchester, N.H.**

For more details circle #128 on mailing card.

"Cafeteria on Wheels" Can Be Completely Hose Cleaned

Designed to permit thorough cleaning of all areas with hose or other methods, the completely mobile Frick "cafeteria on wheels" gives the utmost in flexibility and sanitation. It permits the setting up of complete cafeteria service quickly and easily in any area as the mobile units are easy to move. The entire serving line rolls into place and the under-counter units are separate to permit their removal for complete cleaning after use. Floors



can be mopped without stooping and all units can be completely sanitized with minimum effort. **W. H. Frick, Inc., 704 Citizens Bldg., Cleveland 14, Ohio.**

For more details circle #129 on mailing card.

(Continued on page 100)

SAVE COSTS! SAVE MAINTENANCE! SAVE SPACE!

STANDARDIZE with *Mitchell* FOLD-O-LEG *tables*

Fill your *every* need for efficiency, comfort and economy from Mitchell's *complete* selection of quality-engineered tables, stands, risers and stages. Your Mitchell representative will be glad to show how you and your budget will be ahead. Send coupon for detailed information.

Table Trucks

Make your table moving easier, faster, better . . . and save time, labor, and money doing it.

PorTables

Get versatility and utility with Mitchell's smooth-sure action in this "Fold and Roll" table and bench set . . . at your finger-tip command.

UniTables

Reduce change-over time from minutes to moments with this ingenious Mitchell "Fold and Roll" table. Ruggedly constructed for maximum durability.

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Send illustrated brochure on Mitchell Products as indicated.

☐ Mitchell Tables, Trucks ☐ Mitchell Stands, Stages, Risers

☐ Mitchell UniTables ☐ Mitchell Doublers

☐ Mitchell PorTables ☐ Have Mitchell representative contact us.

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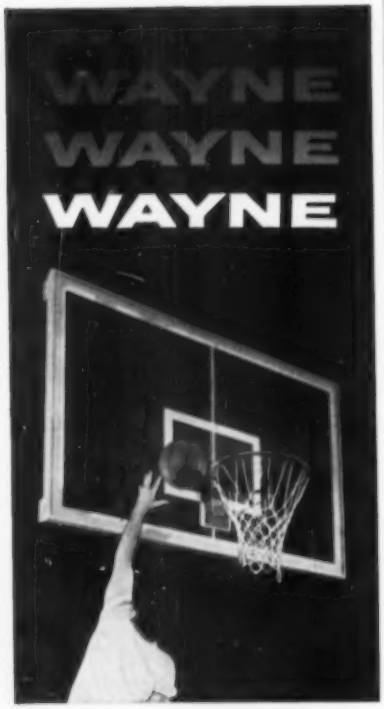
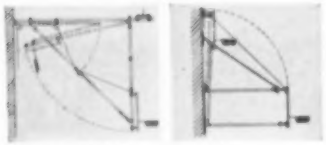
ADDRESS .....

CITY ..... ZONE ..... STATE .....

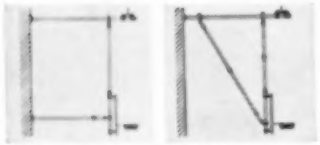


WAYNE BASKETBALL BACKSTOPS work wonders in fitting any gym design



Backward fold ceiling mounted

Fold up, wall mounted



Stationary, wall braced, ceiling mounted

Stationary, ceiling mounted

Forward fold, ceiling mounted

NEW CATALOG

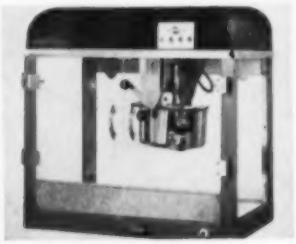
Virtually any requirement in basketball backstops, due to structural conditions, can be met from the Wayne line—in many instances without "custom" cost. Wayne offers over 35 basic backstop designs, each with a wide range of adaptability. All meet the standards of the National Basketball Committee, of course.

Write for new catalog today.

WAYNE IRON WORKS • WAYNE, PA.

Small Low Priced Popcorn Machine In Manley Model 126 Jewel

Model 126 Jewel is a small, low-priced counter popcorn machine with an eight-ounce kettle that will turn out a half-



pound of popped corn every three minutes. The 20 by 30 by 31½-inch unit has a well lighted, glass enclosed case with enamel and chrome trim, a heated cabinet floor and a red, illuminated dome. **Manley, Inc., 1920 Wyandotte, Kansas City 8, Mo.**

For more details circle #130 on mailing card.

Korok Wallsteel Is Durable and Non-Combustible

The ultimate in durability with minimum maintenance is built into the new surfacing material known as Korok Wallsteel. Consisting entirely of inorganic ceramic materials, including decorative and color oxides, Korok Surface is alloyed by fusion with Armco Type I aluminized

sheet steel. The resulting alloy is scratch resistant, burnproof, sanitary and easily cleaned. **The Enamel Products Co., Korok Div., 341 Eddy Rd., Cleveland 8, Ohio.**

For more details circle #131 on mailing card.

Mobilpage Sound System Needs No Electrical Outlet

Six standard flashlight batteries will yield 300 to 500 hours of service with the "battery miser" circuit, a feature of the

Mobilpage 660, a compact, lightweight sound system. The battery powered unit can be set up in less than 30 seconds, requires no connection to an electrical outlet, yet meets nearly all requirements for indoor systems. **Midwest Audio Corp., 3800 W. North Ave., Chicago 47.**

For more details circle #132 on mailing card.

(Continued on page 102)

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DORMITORY FURNITURE

PALMER Dormitory Furniture is sound, lasting, functional furniture, specifically designed, expertly engineered. At PALMER all research, all construction is devoted to the production of institutional furniture, featuring specialized, dependable construction. For at PALMER this is our business — our entire business.

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PALMER Dormitory Furniture is factory-built furniture — functionally planned from the ground up. PALMER'S skilled designers and engineers work in concerted effort with architects when building is still in the design stage. This assures sound, functional arrangement, eliminates expensive and extravagant oversights.

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NOW! Custom-Designed DORMITORY LIGHTING

. . . developed by Adjustable Fixture specialists

- ECONOMICAL
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Built-in swivel lamp (Model 319) designed for Marquette University

Next time you plan dormitory lighting . . . give the facts to our specialists. They'll custom-design installations to fit your specifications. Or, you may prefer to select stock lamps from our complete line of lighting fixtures.

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Careless Smoking is a Universal Problem!

SIPCO

DUNKING STATIONS

Promote Good Housekeeping
Prevent Fire Hazards
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Model 4J-R Duo-Tone With R-G Sign

Model 4J Deluxe

WHEREVER A SMOKING PROBLEM EXISTS, THERE IS A SIPCO MODEL THAT EXACTLY FITS THE NEED.

SIPCO smokers are constructed of heavy-duty cast aluminum -- Built for a lifetime of hard use. OVER 20 DIFFERENT MODELS, include MIDGET size, STANDARD size and JUMBO size. WALL models, FLOOR STAND models and PERMANENT MOUNTING models. DELUXE bright polished finish — or DUO-TONE finish (Grey crinkle canister with satin finished lid.)

MODEL 4J DELUXE (Illustrated) JUMBO size permanent mounting type with bright polished DELUXE finish. Glass fiber inner-liner is furnished.

MODEL 4J-R DUO-TONE (Illustrated) JUMBO size permanent mounting type, with sign. Wide variety of sign wording available. Glass fiber inner-liner furnished.

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The Insured

TUITION PAYMENT PLAN

This is the prepayment plan that brings the parent low-cost life and disability insurance protection, plus a monthly budget provision that extends to the final month of his educational expenses four or more years hence. Used today in many of the best-known colleges and preparatory schools, it has proven most valuable to administrative officers by providing them with a dignified, parent approved method which:

1. alerts parents to their financial obligation when the student is accepted for admission;
2. offers parents a convenient and logical plan for meeting that obligation;
3. assures the parent (and thus the college) that he will have adequate funds with which to meet his college obligations in full and on time;
4. preserves the traditional relationship between the college and the parent—debt-free and direct.

Individualized descriptive literature for mailing to the parents of incoming students is furnished for each preparatory school, college or university.

WRITE TODAY FOR DETAILS

We should like to know more about the insured Tuition Payment Plan as it would apply to the student at

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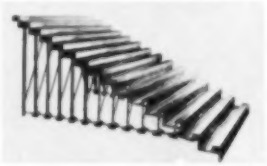
Safety and Low Maintenance With Hussey Open Deck Gym Seats

A new Open Deck type of Roll-Out gym seat meets the demand for retractable spectator seating with a low initial cost



and low maintenance. Constructed of hard Arkansas Pine with a high resistance to splintering, denting and scuffing, the telescopic retractable seats have a steel framework designed for rigidity and structural safety. Standard sections are 16 feet long and from three to 15 rows high. **Hussey Mfg. Co., Inc., North Berwick, Me.**

For more details circle #133 on mailing card.

Savings in Water Consumption With Easy Push Metering Shower

An adjustable metering valve with an integral volume control for regulating the water supply is a feature of Speakman's Easy Push self-closing metering shower, which offers considerable savings to in-

stitutions with multiple shower installations. When the Easy Push handle is pressed down, the shower gives up 4½ g.p.m. of tempered water and shuts off automatically, so that water is not wasted while the user is soaping. **Speakman Co., 30th & Spruce Sts., Wilmington, Del.**

For more details circle #134 on mailing card.

50 Line Exit Sign Is "Wafer Thin"

A compact, code-regulated Exit sign, McPhilben's "wafer thin" 50 Line, features all cast aluminum construction, precision-stenciled face or glass inscription panels, two-circuit wiring for either in-

candescent or fluorescent lamps, an integral downlight that provides illumination in case of an emergency, and an internal cast hinge-and-lock that eliminates all external hardware. **McPhilben Lighting, Inc., 1329 Willoughby Ave., Brooklyn 37, N. Y.**

For more details circle #135 on mailing card.

(Continued on page 104)

Mr. Du

SAYS:

I've got the products
To clean most all,
From tableware to dining hall
Just pick up your phone*
And make the call.

*Listed under Cleaning Compounds in the Yellow Pages.

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NEUTRA-GLOSS

. . . industrial, self-polishing, liquid floor wax in two grades, Regular and Sla-Hard. Regular gives you maximum safety with good gloss and UL approval. Sla-Hard for maximum gloss and good safety. For floor treatment and other school sanitation problems consult Mr. Du near you.

40 years of cleaning experience at your service.

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Over 25 styles and sizes of chairs and stools available. Equipped with the famous "Lift-Lok" mechanism.

MATCHING CHAIRS AND STOOLS FOR ALL HARCO EQUIPMENT

The all NEW exclusive "Lift-Lok" adjustment automatically adjusts the seat for persons of all heights. From its lowest position to the desired height simply lift up seat and seat will automatically lock.

SIMPLE – INSTANT – POSITIVE

Over 25 models of completely adjustable chairs and stools. 9 with 7" height adjustment

Write for Free Catalog and Price List

FULL 12 YEAR GUARANTEE ON ALL HARCO CHAIRS AND STOOLS

GARRETT TUBULAR PRODUCTS, INC.
P.O. BOX 237 DEPT. CUB GARRETT, INDIANA

THINGS ARE CHEAPER THAN PEOPLE

All through the advertising pages of this magazine and in the "What's New" section there is information on products that will save you and your staff time and do the job better. Every wise administrator knows that time saved is money saved—that *things* are cheaper than people. Be sure you know all that research and manufacturing skill are making available to save you and your staff time and money—and do the job better.

Turn to the yellow sheet at the back of this issue—you'll find every product shown in the magazine identified by number. The postage-paid return card will bring you the specific information you need. Be sure to keep up to date. Use the card and be sure.

Hampden Chairs can take it!

STURDY FOLDING CHAIRS . . . LAST YEARS LONGER!

NO. 522 TABLET ARM CHAIR

Also available with upholstered or plywood seat Folding Tables: 30 and 36 inch tops, available for Contract use

Whatever the burden, wherever the need, Hampden adult and juvenile public seating chairs give the best service! In quality, style, construction and value, Hampden chairs top the field in every price range. Built for rugged use, they won't tip or tilt . . . rust-resistant . . . flat-folding and convenient to store. Hampden chairs give extra value for a thrifty price! **WRITE for catalogue: Dept. A-3. HAMPDEN, Easthampton, Mass.**

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Manufacturers of:
PUBLIC SEATING • OUTDOOR and JUVENILE FURNITURE • BRIDGE SETS

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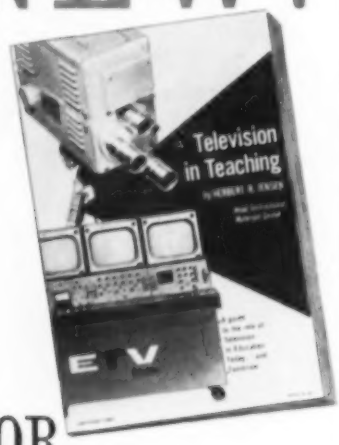

FOR EDUCATIONAL TV PLANNERS

"Television in Teaching"
by Dr. Herbert R. Jensen, Supervisor, Instructional Materials Center, Public Schools, Greenwich, Conn.

Published for administrators, school boards and teachers by DAGE/TRW . . . pioneer in electronic equipment and tested techniques for education.

This valuable 28-page book explores television's unique potential for improving educational productivity and communication efficiency.

Of particular interest are 17 conclusions covering fundamental pedagogic and operational considerations. Drawn from actual experience and research, they are logical guidelines to the detailed organization and planning steps within a framework of a school's needs, goals and finances.

For a copy of "Television in Teaching," and a list of other DAGE/TRW Educational Television publications, write, wire or phone today.

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Plastic-Laminate Faced Doors Have Anodized Aluminum Louvers

Pre-finished, installed, extruded anodized aluminum louvers are now built into

Chemclad plastic-laminate faced doors. The Chemclad "sightproof" louver or door grille incorporates a special inverted "Y" design for added stability and easy cleaning. The anodized aluminum construction resists wear and all grilles are centered in the doors with matching aluminum stops for uniform appearance on both sides. **Bourne Mfg. Co., 1573 E. Larned St., Detroit 7, Mich.**

For more details circle #136 on mailing card.

Portable Rear Projection Unit in Economical Movie-Mover

The Movie-Mover, a classroom rear projection unit, is designed to move heavy movie equipment from one area to another and permits audio-visual lessons in rooms that do not have light control.

Available in three sizes, the new product has an all-steel frame finished in double-baked silicone-base sandalwood paint, four-inch rubber tired swivel casters, rear wheel brakes, and a built-in bracket to hold the 20-foot power cord which is a part of the economical unit. **H. Wilson Co., 106 Wilson St., Park Forest, Ill.**

For more details circle #137 on mailing card.

Shannovue Visible Records Offer Instant Access

Sound and economical handling of records is offered with the Shannovue Visible Record system. Time is saved in locating records as well as in summarizing their content and recording information, and the simplicity and accuracy of the system minimize error. The records permit instant access to critical facts in an orderly manner. The system employs a variety of card types and sizes to meet every need, including flexible arrangements, stock printed forms and special prepared forms for adapting Shannovue exposed cards to specific needs. **The H-O-N Co., Muscatine, Iowa**

For more details circle #138 on mailing card.

Modern Stacking Chair Is Attractive and Sturdy

Modest cost, modern design and rugged construction are combined in the four new chairs introduced by Baumritter for institutional use. All chairs feature Viko tubular steel framing with easy-care plastic upholstery. The stacking chair illustrated has an extra-sturdy frame in "platinum" or "walnut" finish, foam cushioning and fabric-backed plastic upholstery in a choice of six colors. The carefully finished

underside protects chairs in stacking and angled back legs with rubber cushion glides protect walls and floors. **Baumritter Corp., 145 E. 32nd St., New York 16.**

For more details circle #139 on mailing card.

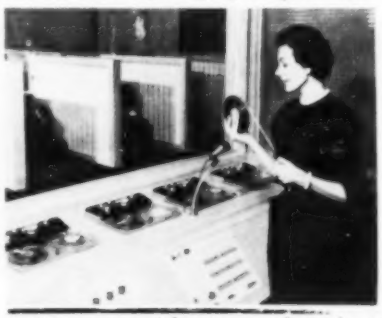
Lime-A-Way Acid Detergent Removes Stains and Soil

An acid detergent for quickly removing stains and food soil which are unaffected or slowly removed by alkaline detergents, Lime-A-Way is safe to use and will not harm skin, nylon, metal surfaces, china or glassware, according to the report. It is developed primarily for use in deliming dish machines, steam tables and other areas on which lime builds up as a result of hot water and steam. It can also be used to clean coffee urns, drinking fountains, glassware, and stainless steel surfaces. **Economics Laboratory, Inc., 250 Park Ave., New York 17.**

For more details circle #140 on mailing card.

"Packaged" Teaching Laboratory Suitable for Many Subjects

A one-source package for electronic teaching is introduced by Webster Electric for teaching languages, speech cor-



rection, commercial courses such as shorthand, and other subjects. The result of thirteen years of study and research, the device permits three different methods of teaching. Up to nine different lessons can be taught at the same time to from six to 54 or more students. **Webster Electric Co., Racine, Wis.**

For more details circle #141 on mailing card.

910 Computer Typewriter
Simple to Operate

Model 910, the new Royal automatic sequence controlled computer typewriter, relieves the operator of the routine tasks of computation, computing all figures properly regardless of their position on the form, yet is as simple to operate as an electric office typewriter. The equipment automatically types all extensions, subtotals and totals and a stored program control makes it possible to print descriptions without recourse to manual key-

strokes. Depression of a single switch can call instructions for the machine into action in a predetermined sequence, and an easily replaceable plugboard permits change of instructions from one job to another. **Royal McBee Corp., Westchester Ave., Port Chester, N.Y.**

For more details circle #142 on mailing card.

Addition to Vul-Cot Line
Is Fire Resistant Receptacle

Made with Pyronil fibre, a material that will not support combustion, the new Vul-Cot Waste Basket can be used wherever a fire hazard is present or where safety laws require the waste basket must be intact after its contents are consumed by fire. A recessed bottom is an added advantage, as there is practically no heat transfer and burning of the floor under the basket is prevented. **National Vulcanized Fibre Co., Maryland Ave. & Beech St., Wilmington 99, Del.**

For more details circle #143 on mailing card.

Cartalab Mobile Desk
For Science Demonstrations

Loss of valuable classroom time is avoided with the new Cartalab, a mobile instruction center that permits the ad-

vance preparation of special experiments and enables teachers to carry on science demonstrations whenever and wherever study areas are available. The unit contains a stainless steel sink with pump faucet, retractable electric cord with multiple outlets, drawer and cabinet storage space, plastic tote trays and an acid resistant top. **Metalab Equipment Co., 270 Duffy Ave., Hicksville, N.Y.**

For more details circle #144 on mailing card.

Folding Arm Chair
Is Attractive and Comfortable

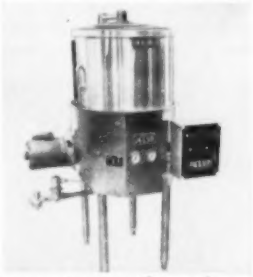
The Deluxe 3400 Series folding arm chair can be used for both permanent and auxiliary seating. Body-formed for com-

fort, the roomy chair is attractive in appearance without excessive size or weight, and folds to a flat three inches. The arms fold in one motion with the rest of the chair. Upholstery material in a wide range of colors includes Naugahyde, nylon and grospoint over foam rubber. **Clarin Mfg. Co., 4640 W. Harrison St., Chicago 44.**

For more details circle #145 on mailing card.

Compact, Low Cost Dishwasher
For Small Installations

A compact, low cost unit for small or medium sized installations, the Jackson Model 10 APR-B Automatic Dishwasher features Power Rinse to assure a safe rinse at all times, regardless of low or fluctuating water pressures. A built-in Booster Heater provides 180-degree final



rinse temperatures without the need for an external heater. The unit has all the advantages of larger dishwashers in the line, and can wash 40 racks, 950 dishes or 1200 glasses per hour. **Jackson Products Co., Industrial Park, Tampa 4, Fla.**

For more details circle #146 on mailing card.

Lightweight Decorachime
Operated From Simple Keyboard

The Decorachime is a new, lightweight electromechanical chime combining "the visual beauty of traditional cathedral chimes and the tone of a fine miniature electronic chime which never requires tuning." It is operated from a simple keyboard and is described as a versatile unit that will produce everything from a scale to the national anthem. Its light weight is matched by low cost. The Decorachime, weighing as little as 17 pounds, consists primarily of a 25-note ChimAtron tone generator, a Decor wall unit and a keyboard. Model DJC is designed for use in schools and chapels while Model DSC is used in large auditoriums or cathedrals. **Schulmerich Carillons, Inc., Carillon Hill, Sellersville, Pa.**

For more details circle #147 on mailing card.

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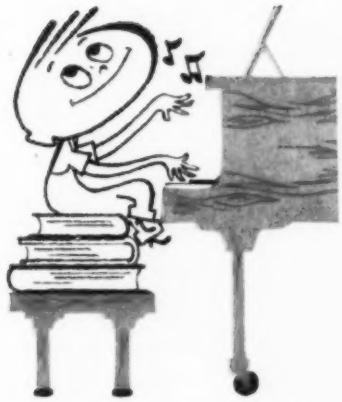

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Literature and Services

• The line of Excel portable lamps designed specifically for use in college residence halls is the result of research to determine the correct amount and quality of light for study areas, and the construction features necessary to withstand the rough usage in dormitory rooms. A new catalog, **"The University Line by Excel,"** just released by Excel Mfg. Corp., S. Walnut at 20th, Muncie, Ind., presents the full line, including approximately 100 new models of lighting fixtures and portable lamps. The company also offers models to meet particular situations.

For more details circle #148 on mailing card.

• The new **"I.L Supplement,"** a four-page folder illustrating the many designs in lighting fixtures, lanterns and lamp standards available from Meierjohan-Wengler, 1100 W. Ninth St., Cincinnati 3, Ohio, displays a variety of contemporary and traditional models custom-fabricated in bronze, aluminum, stainless steel and wrought iron.

For more details circle #149 on mailing card.

• Facts of interest to all Americans, but particularly to administrators of institutions, on the problem of our water supply in the United States and what is necessary to assure a plentiful future supply are presented in a new color motion picture entitled **"Water Bill U.S.A."** Narrated by Walter Cronkite, the 27-minute film is available from Caterpillar Tractor Co., Peoria, Ill. for showing to executive and other groups.

For more details circle #150 on mailing card.

• Information on the new line of flexible language laboratory systems produced by the Educational Equipment Div., Edwards Company, Inc., 94 Connecticut Ave., Norwalk, Conn., is supplied in a four-page brochure giving details of all components. Features of the systems, described as offering **"Better Language Instruction for More Students . . . The Most Effective Way,"** include flexible, multi-channel programing, dual-track recording and playback equipment and electronic components which reproduce the full range of sounds and tones heard in foreign tongues.

For more details circle #151 on mailing card.

• The story of Astro-Dome Incorporated, 1801 Brownlee Ave. N.E., Canton 5, Ohio, manufacturer of the fiberglass **Astro-Domettes** for use in science departments, is told in a 12-page brochure. Types of domes built by the company, standard sizes available, quality of construction and design and a list of Astro-Dome installations in colleges and universities are data included in the booklet.

For more details circle #152 on mailing card.

• Written for instructors, librarians, parents and career and vocational guidance counselors in high schools and colleges, **"You . . . and Your Career"** is a 32-page booklet, published by Collier's Encyclopedia, Library & Educational Div., 640 Fifth Ave., New York 19, and available at 50 cents per copy. Gathered from articles originally appearing in Collier's Encyclopedia Year Book, the publication analyzes 113 career opportunities.

For more details circle #153 on mailing card.

• Descriptive information on the line of **gasoline and electric Trucksters** for use in personnel transportation, light materials handling and maintenance operations in colleges is given in a six-page folder entitled **"They're All Muscle"** available from Cushman Motors, Lincoln, Neb.

For more details circle #154 on mailing card.

• **"Finishing Northern Hard Maple the MFMA Way"** is the title of a folder available from the Maple Flooring Manufacturers Assn., 35 E. Wacker Drive, Chicago 1, giving a revised list of laboratory tested and approved floor finishing products for use on Northern Hard Maple floors.

For more details circle #155 on mailing card.

• A guide to the selection of automatic heating and cooling controls, the **Engineer's Manual on Steam and Water Service** presents typical examples and offers workable systems to solve control problems. Availble from Powers Regulator Co., 3400 Oakton St., Skokie, Ill., the booklet includes a technical directory.

For more details circle #156 on mailing card.

Suppliers' News

Beckley-Cardy Co., 1900 Narragansett Ave., Chicago 39, manufacturer of school supplies and equipment, announces acquisition of **Schoolco,** a major school seating manufacturer. The move increases the Beckley-Cardy school seating volume by several times through the addition of the Schoolco line.

Lily-Tulip Cup Corp., 122 E. 42nd St., New York 17, manufacturer of paper disposable food service, announces opening of a new **Technical Center in Commack, Long Island.** The 150,000 square foot facility is planned as an integral part of Lily-Tulip's continuing expansion program and will concentrate all of its research and development functions under one roof.

Recordak Corporation, 415 Madison Ave., New York 17, the Kodak subsidiary in the microfilm and business systems field, announces the establishment of an **educational microfilm systems department** to work with educators on planning of programed learning systems and teaching machine educational methods. It presents a new method of scientifically constructing, arranging and presenting educational material in a manner designed both to accelerate the learning processes and to increase comprehension and retention of the subject matter.

United Fruit Co., 30 St. James St., Boston 16, Mass., grower and shipper of bananas from Latin America, announces its entry into the processed foods business. The first step is acquisition of **Liana Incorporated, San Carlos, Texas,** a company engaged in the freeze-dehydration of shrimp.

Western Industries, Inc., 2742 W. 36th Place, Chicago 32, manufacturer of automatic parking gates, announces the signing of a distribution agreement with **Pigeon Hole Parking, Inc., Spokane, Wash.,** making the Chicago firm United States distributor for **Pigeon Hole Mechanical Parking** installations.

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INDEX TO ADVERTISEMENTS

USE THIS PAGE TO REQUEST PRODUCT INFORMATION

The index on this and the following page lists advertisements in this magazine alphabetically by manufacturer. For additional information about any product or service advertised, circle the manufacturer's key number on the detachable postcard and mail it. No postage is required.

Products described in the "What's New" pages of this magazine also have key numbers which appear in each instance following the description of the item. For more information about these items, circle the appropriate numbers on the postcard and mail it, without postage, to College & University Business.

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USE THIS CARD — (We pay the postage)

I am interested in the items circled— **February, 1961**

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Made wonderful by Steelcase office furniture. Many college and university buying officers have made the pleasant discovery that Steelcase is well within their budget; that for a surprisingly modest sum their campus offices, both general and private, can be every bit as attractive, comfortable and efficient as the office above. Steelcase Inc., Grand Rapids, Michigan; Canadian Steelcase Co., Ltd., Don Mills, Ontario.

For the asking: Panorama, our new full-color, full-line office furniture brochure. Just address Department C.

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Editorial Dept.,
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COMFORT ON THE CAMPUS

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The School of Business Building at Florida State University combines modern concepts of comfort with practical economy — in thermal environment, functional layout, efficient use of space, and low yearly operating costs. In this one attractive building the School of Business has wisely included classrooms, laboratories, faculty offices, and seminar rooms, as well as special conference rooms for visiting lecturers from the world of business.

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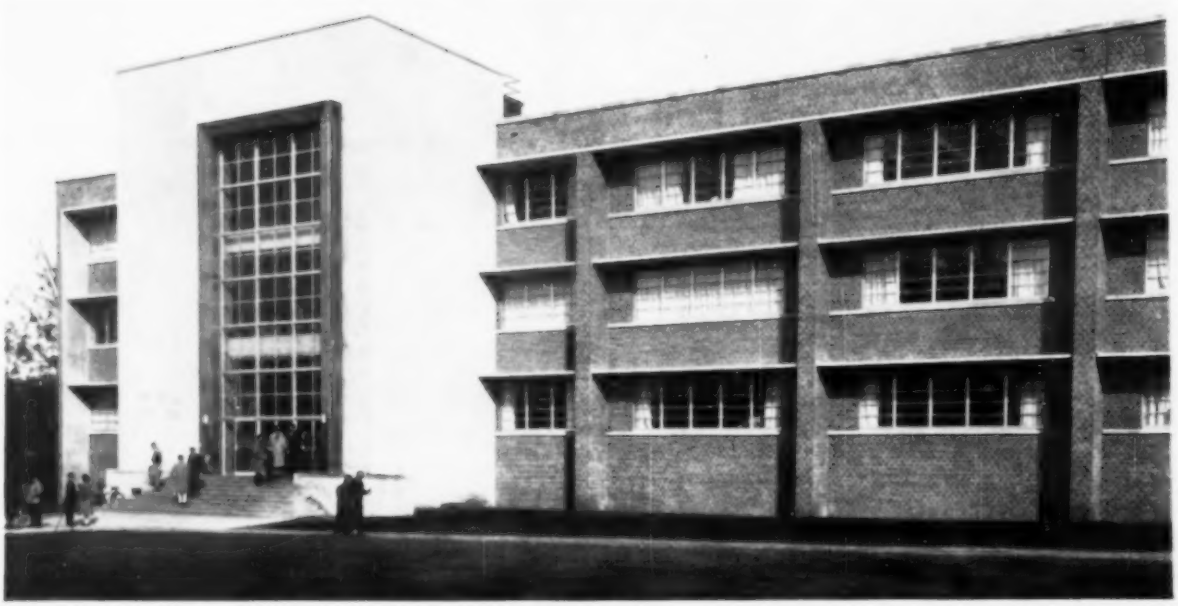

School of Business, Florida State University, Tallahassee, Florida. Steward & Skinner, Miami, architects; Maurice H. Connell & Associates, Miami, mechanical engineers (original project); Ebaugh and Goethe, Gainesville, Florida, mechanical engineers (air conditioning additions); S. J. Curry Company, Albany, Georgia, general contractor; Smith-Raymond Co., Inc., Columbus, Georgia, mechanical contractor.